Enterprise IP Solutions

OfficeServ 500 General Description Guide

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INTRODUCTION

Purpose

OfficeServ 500, Enterprise IP Solutions system, is a digital telephone system designed for small to medium-sized businesses.
This manual provides an overview of the Samsung OfficeServ 500 including system structure and hardware, features and facilities and specifications.

Document Content and Organization

This guide consists of following 4 chapters. Find and read necessary chapters.

- Introduction to System
- Hardware Descriptions
- Specifications
- Business Feature Package

Conventions

The following special paragraphs are used in this document to point out information that must be read. This information may be set-off from the surrounding text, but is always preceded by a bold title in capital letters. The three categories of these special paragraphs are :

WARNING

Indicate a potentially hazardous situation which if not avoided, could result in death or serious injury.

CAUTION

Indicate a potentially hazardous situation which if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

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NOTE

Indicates additional information as a reference

Reference

OfficeServ 500 Installation Guide

Introduces the installation related information for OfficeServ 500 system.

OfficeServ 500 Programming Guide

This guide is a programming(MMC) description for OfficeServ 500 system users.

OfficeServ 500 Service Manual

Introduces circuit configuration of each section in OfficeServ 500 system, main functions, parts list, troubleshooting, and disassembly diagram of main device.

DS-5012L Digital Phone User's Manual

This is a user's manual for the Large LCD Digital Phone(DS-5012L) that can be used by connecting to the OfficeServ 500 system.

ITP-5012L IP Phone User's Manual

This is a user's manual for the Large LCD IP Phone that can be used by connecting to the OfficeServ 500 system.

DS-5021D/5014D Digital Phone User Guide

This is a user's manual for the 2 Line LCD Digital Phone(DS-5012D, DS-5014D) that can be used by connecting to the OfficeServ 500 system.

ITP-5021D/5014D IP Phone User Guide

This is a user's manual for the 2 Line LCD IP Phone(ITP-5021D, ITP-5014D) that can be used by connecting to the OfficeServ 500 system.

OfficeServ 500 Wireless LAN Service Manual

Introduces information needed to install the wireless device of the OfficeServ 500 system or for its maintenance.

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WIP-5000M Phone User Guide

This is a user's manual for WIP-5000M that is designed to use wireless LAN provided from the OfficeServ 500 system.

The manuals for OfficeServ 500 Wireless LAN and WIP-5000M Phone will be provided at the time of product release in later time.

Revision History

EDITION	DATE OF ISSUE	REMARKS
00	7. 2003.	First Version

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SAFETY CONCERNS

For product safety and correct operation, the following information must be given to the operator/user and shall be read before the installation and operation.

Symbols

Caution

Indication of a general caution

Restriction

Indication for prohibiting an action for a product

Instruction

Indication for commanding a specifically required action

CAUTION

Barge-In without tone may violate laws concerning the right to privacy.

SAMSUNG Electronics CO. is in no way responsible for the possible misuse of this feature.

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CHAPTER 1

Introduction To System

This chapter describes the introduction to the OfficeServ 500 system as follows :

- General Description
- Size and Configuration
- Types of OfficeServ 500 and System Specifications
- Technology
- Programming

1 GENERAL DESCRIPTION

The SAMSUNG OfficeServ 500(Enterprise IP Solutions System) is a digital telephone system designed for small to medium-sized businesses. It can operate with the functionality of a square button system, PABX or a combination of both(hybrid). The Enterprise IP Solutions System employs DSP(Digital Signal Processors) digital technology.

The OfficeServ 500 offers a variety of interface cards that allow connection to the public telephone network or to private networks. These are generally referred to as trunk cards. Two types of telephones can be connected to the system. Proprietary digital phones called 'phones' connect to Digital Line Interface cards(DLI). Standard telephones generally called 'single line sets' connect to Single Line Interface cards(SLI). In addition, DLI station ports are used to connect peripheral devices such as door phones, serial interface devices and add-on modules. Miscellaneous circuits are provided to allow such optional features as external paging, music on hold, background music, and common audible devices. All interface cards are encased in an anti-static plastic enclosure and most can be inserted or removed with power on to eliminate unnecessary service interruptions while performing maintenance.

All phones utilize a single PCB with surface-mounted components assuring the highest product quality and long life. Samsung's customary large, easy-to-read displays and LEDs in the button design make them much easier to use. In many instances, sophisticated features are made simple through the use of friendly display prompts or push-on/push-off feature buttons.

Expanding the OfficeServ 500 system is both economical and easy. Begin with a single cabinet configured as a basic Button Service Unit and then add up to two more cabinets as your business grows. Its low and medium density card design allows greater flexibility when configuring a system for the right combination of lines and stations. A removable software cartridge(SmartMedia card) makes it convenient to upgrade to future feature packages.

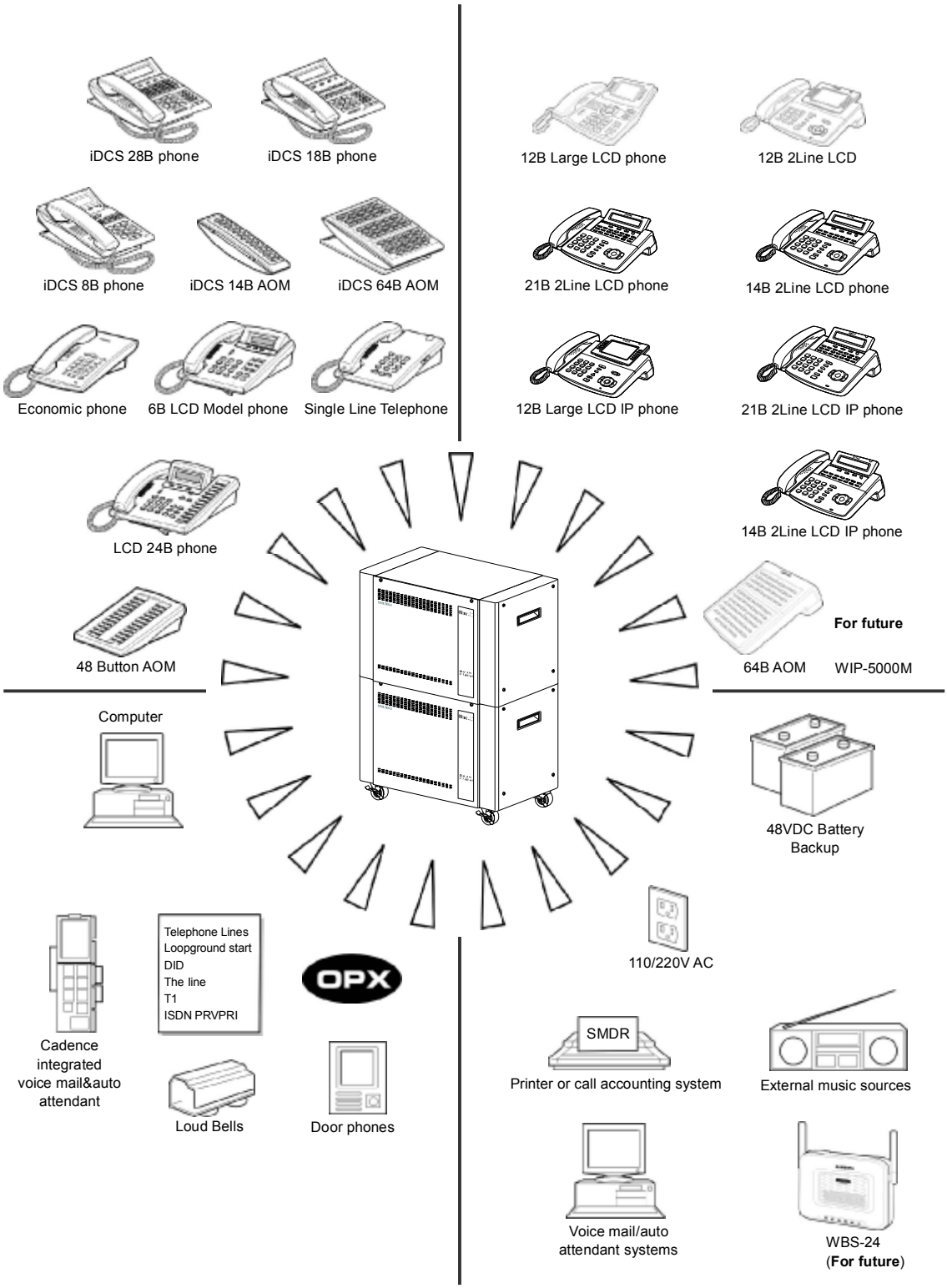

Figure 1.1 OfficeServ 500 General System Diagram

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2 SIZE AND CONFIGURATION

The OfficeServ 500 is a fully modular system comprised of a single cabinet configured as a Button Service Unit, up to two additional cabinets, interface cards and electronic phones. A fully expanded system using the TEPRI cards can have a maximum of 352 lines or 360 stations. Without the TEPRI cards, the maximum number of lines is 208 and the maximum number of stations is 360. The maximum number of ports supported by the system is 488. Each cabinet of the system supports two power supply units, the first of which must be a PSU-B and can support up to 56 stations. When assisted by a second power supply unit(either PSU60 or PSU-B) the cabinet can support up to 120 station devices. Both power supply units are connected to the DC bus for external battery backup. Each cabinet also has four(4) Digital Signal Processor(DSP) channels for use as DTMF receivers or tone detectors.

2.1 Single Cabinet System

A single cabinet system has nine universal card slots, a processor slot and two power supply slots, the first of which must be occupied by a PSU-B. Station or trunk(line) cards can be installed in any of the nine universal slots. The TEPRI cards must be installed in slots 1, 2 or 3. This allows a maximum of 120 stations of any kind or 120 lines in a single cabinet system. Without using TEPRI cards, the maximum number of CO lines in the basic KSU is 72.

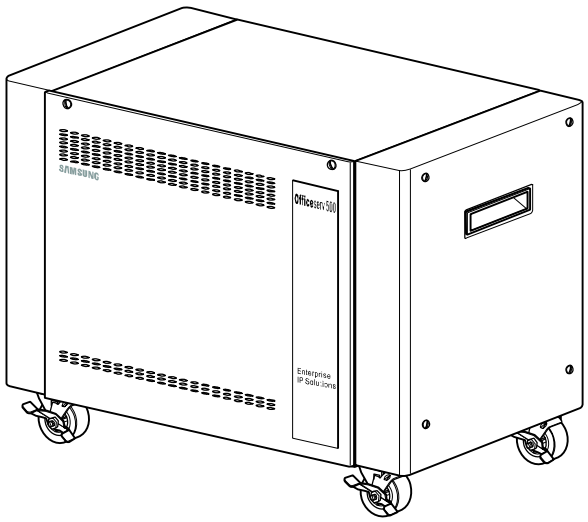

Figure 1.2 OfficeServ 500 Single Cabinet System

NOTE

The first power supply slot must be occupied by a PSU-B to supply sufficient power to all 10 slots(9 universal and a processor slot) and support up to 56 stations. The second power supply slot can be occupied by either a PSU60 or PSU-B. Do not use a PSU40 in either PSU slot.

2.2 Two Cabinet System

When it is required that the basic system be expanded to provide a capacity greater than that described above, the Signal Control Processor(SCP/SCP2) card must be installed in slot nine of the first cabinet. This card provides an intermediate level of processing to control the first cabinet therefore freeing resources on the Main Control Processor(MCP/MCP2) to control the entire system. Adding the SCP/SCP2 card therefore reduces the number of universal card slots in the first cabinet to eight.
In addition, the MCP card must be equipped with a ESM daughter board and a IPM daughter board. In case of MCP2 card, only ESM daughter board is required and IPM/LAN is not needed. Only a LAN daughter board may optionally occupy the remaining daughter board position on the MCP card. All other types of daughter boards must be installed on the SCP/SCP2 card or LCP/LCP2 card.

Adding one expansion cabinet makes the system a two cabinet system with 17 universal card slots(see Figure 1.2). This allows a maximum of 240 stations or 232 lines when using TEPRI cards. Without the TEPRI cards, the maximum number of lines is 136 while the maximum number of stations remains at 240. This second cabinet is controlled by a Local Control Processor(LCP/LCP2) in a similar manner to the SCP/SCP2 in the first cabinet and connects to the MCP/MCP2 via a 25 pair cable. The LCP/LCP2 processor card resides in a dedicated slot 10 of the second cabinet and therefore does not deplete the number of universal card slots.

The first power supply slot in each cabinet must be occupied by a PSU-B to supply sufficient power to all 10 slots(9 universal and a processor slot) and support up to 56 stations. The second power supply slot can be occupied by either a PSU60 or PSU-B. Do not use a PSU40 in either PSU slot.

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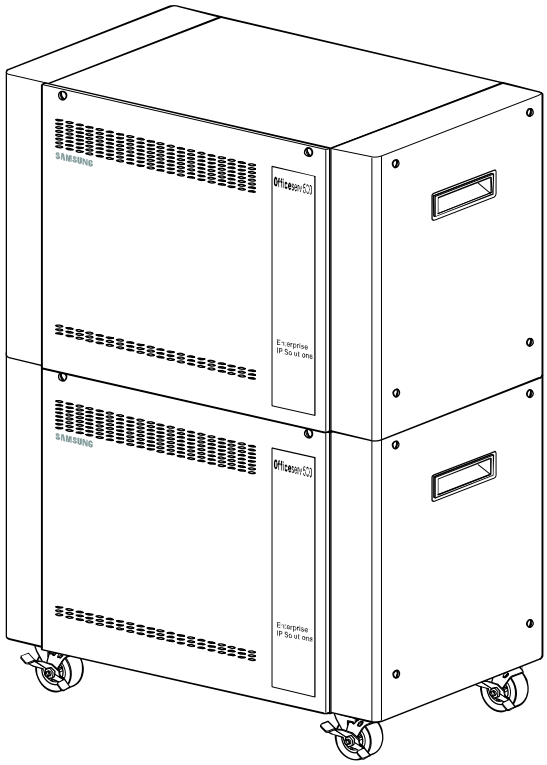

Figure 1.3 OfficeServ 500 Two Cabinet System

2.3 Three Cabinet System

In a fully expanded three cabinet system, there are 26 universal card slots(see Figure 1.3). This allows a maximum of 360 stations or 352 lines when using TEPRI cards. Without TEPRI cards, the maximum number of lines is 208 and the maximum number of stations is 360. The third cabinet is also controlled by a Local Control Processor (LCP/LCP2) in a similar manner to the LCP/LCP2 in the second cabinet and connects to the second cabinets' LCP/LCP2 via a 25 pair cable. This processor resides in a dedicated slot 10 and therefore does not deplete the number of universal card slots. In addition, the MCP card must be equipped with an ESM daughter board and an IPM daughter board. Only a LAN daughter board may optionally occupy the remaining daughter board position on the MCP card. All other types of daughter board must be installed on the SCP/SCP2 card or LCP/LCP2 card.

Figure 1.4 OfficeServ 500 Three Cabinet System

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The first power supply slot in each cabinet must be occupied by a PSU-B to supply sufficient power to all 10 slots(9 universal and a processor slot) and support up to 56 stations. The second power supply slot can be occupied by either a PSU60 or PSU-B. Do not use a PSU40 in either PSU slot.

3 TYPES OF OFFICESERV 500 AND SYSTEM SPECIFICATIONS

The OfficeServ 500 system is classified into OfficeServ 500-M and OfficeServ 500-L by capacity, and the feature and performance are classified by the mounted main control card MCP and MCP2.

3.1 OfficeServ 500 Classification by Capacity

The OfficeServ 500 system is classified into OfficeServ 500-M for small capacity and OfficeServ 500-L for large capacity depending on configuration. The table below shows the difference between OfficeServ 500-M and OfficeServ 500-L.

Table 1.1 OfficeServ 500 Configuration Type

Item	OfficeServ 500-M	OfficeServ 500-L
Construct	- SIngle cabinet	- Single cabinet - Two cabinet - Three cabinet
Universal Slot	- 16 channel : 6 - 32 channel : 3	- 16 channel : Max. 17 - 32 channel : Max. 9
Basic Cards Mounted	- MCP/MCP2 card - PSU-B card	- MCP/MCP2, SCP/SCP2, LCP/LCP2 card - ESM, IPM board(used with MCP) - PSU-B card
Daughter Board	- SCM : Max. 1 - RCM : Max. 1 - MISC : Max. 1 - LAN : Max. 1(for MCP) - TOTAL : Max. 3	- SCM : Max. 1 - MFM : Max. 3 - RCM : Max. 3 - MISC : Max. 3 - LAN : Max. 1(for MCP) - TOTAL : Max. 10
Input/Output Port (IOM board)	- Basic : 2 port(basic 19.2Kbps, Max. 38.4Kbps) - Option : 2 port(basic 19.2Kbps, Max. 38.4Kbps) (available only for MCP+LAN)	

3.2 OfficeServ 500 Classification by Performance/Function

The OfficeServ 500 system is classified into MCP based system and MCP2 based system by performance and function.
IP phone, Large LCD phone service, and services related to wireless LAN are only available in the MCP2 based OfficeServ 500 system. Refer to Table 2.1(Differences between the MCP Card and the MCP2 Card) for the button differences between MCP and MCP2.
The function and performance of the OfficeServ 500 system is classified by the mounted main control card MCP and MCP2. IP phone, Large LCD phone service, and wireless LAN related services are only available on configurations using the MCP2 card. Refer to Table 2.12(Differences between MCP and MCP2 cards) for button differences between the main control parts MCP and MCP2.

3.3 System Specifications

Table 1.2 OfficeServ 500 Specifications

Item		Specifications
Supported Cards	Trunk Line card	8TRK, DID, E/M, TEPRI, BRI
	Station Card	SLI, 8SLI, 16SLI, 8MWSLI, 16MWSLI, DLI, 16DLI
	Service Card	AA, SVMi-8, SVMi-16, VDIAL, 8WLI, ITM3, MGI1, MGI2, MGI3
	Daughter Board	ESM, IPM(MCP only), LAN(MCP only), MISC, SCM, MFM, RCM, ITM3D, MODEM
	Service Board	IOM, MDF, PFT
Additional Equipment		Hold/Background sound source External broadcasting device Common bells PC for programming(PCMMC) SMDR computer, CTI computer
Connectable Terminal		General phone(SLT-A, SLT-C) Digital phone - DS-4000 phone(DS-4028E, DS-4018E, DS-4008E, DS-4014 AOM, DS-4064 AOM, DS-4000 KDB-D, DS-4000 KDB-S, DS-4000 KDB-F, DS-4000 EXTMIC) - DS-24SE phone(DS-24SE, DS-24SE AOM, DS-24SE KDB-D, DS-24E KDB-S) - DS-2024E phone(DS-2024E, DS-2012E, DS-2024 AOM, DS-2024 KDB-D, DS-2024 KDB-S) - DS-3020S phone(DS-3020S, DS-3020S AOM) - DS-24D phone(S phone) - DPIM

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Item	Specifications
Connectable Terminal	- Large LCD phone(available when using MCP2) (DS-5012L) - 2 Line phone(available when using MCP2) (DS-5021D/14D) IP phone(available when using MCP2) - ITP-5012L(Large LCD) - ITP-5021D/14D(2 Line LCD) Wireless LAN phone(available when using MCP2 : For Future) - WIP-5000M

3.4 Syetem Configuration

The OfficeServ 500 system is classified into small capacity OfficeServ 500-M and medium, large capacity OfficeServ 500-L by line capacity, and the function/performance is classified upon the mounted MCP and MCP2 control cards. The system configuration there of are shown below.

Table 1.3 OfficeServ 500 System Configuration

Classification	Component	MCP		MCP2		Remarks
		OfficeServ 500-M	OfficeServ 500-L	OfficeServ 500-M	OfficeServ 500-L	
SYSTEM	CABINET	■	■	■	■	
	MCP	■	■			
	MCP2			■	■	
	SCP		■			
	LCP		■			
	SCP2				■	
	LCP2				■	
	IOM	■	■	■	■	Not mounted on expansion cabinets.

Classification	Component	MCP		MCP2		Remarks
		OfficeServ 500-M	OfficeServ 500-L	OfficeServ 500-M	OfficeServ 500-L	
System	SCM	■	■	■	■	Common resource daughter boards are mounted in MCP/MCP2 for OfficeServ 500-M configuration, and in SCP/SCP2/ LCP/LCP2 for OFFICESERV 500-L Configuration.
	MFM	■	■	■	■	
	RCM	■	■	■	■	
	MISC	■	■	■	■	
	ESM		■		■	Used for line expansion
	IPM		■			Not used when configuration the system as MCP2 card.
	LAN	■	■			
	MODEM	■	■	■	■	Mounted in IOM
VoIP	ITM3	■	■			8 channels
	ITM3D	■	■	■	■	8 channels, shared in MGI3/ITM3
	MGI1			■	■	Supports G.711
	MGI2			■	■	Supports G.711, G.729
	MGI3			■	■	Supports G.711, G.729, G.723, T.38
WLAN (For Future Application)	8WLI			■	■	1card per system supported. Accommodates eight WBS24
	WBS24			■	■	Wireless LAN BTS

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Classification	Component	MCP		MCP2		Remarks
		OfficeServ 500-M	OfficeServ 500-L	OfficeServ 500-M	OfficeServ 500-L	
WLAN (For Future Application)	WIP5000M			■	■	Wireless LAN MS
DECT	8BSI	■	■	■	■	Accommodates eight DBS Max. 1 card for M system Max. 3 card for L system supported
	DBS	■	■	■	■	DECT BTS
	0D8000	■	■	■	■	DECT MS
Phone	DPIM	■	■	■	■	
	DS-5012L			■	■	Large LCD
	DS-5021D/ 14D			■	■	2 Line LCD
	ITP-5012L			■	■	Large LCD
	ITP-5021D/ 14D			■	■	2 Line LCD
	DS-4000 Series	■	■	■	■	
	DS-24E Series	■	■	■	■	
Phone	DS-3020 Series	■	■	■	■	
	DS-24D Series	■	■	■	■	
D TRK	TEPRI	■	■	■	■	
	BRI	■	■	■	■	
A TRK	TRK_B	■	■	■	■	
	8TRK	■	■	■	■	
	DID	■	■	■	■	
	E & M	■	■	■	■	
	B & W	■	■	■	■	
	R & D	■	■	■	■	

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Classification	Component	MCP		MCP2		Remarks
		OfficeServ 500-M	OfficeServ 500-L	OfficeServ 500-M	OfficeServ 500-L	
A TRK	4WE & M	■	■	■	■	
Subscriber	16SLI	■	■	■	■	16 Channels
	16MWSLI	■	■	■	■	Message Waiting function
	8SLI	■	■	■	■	8 Channels
	8MWSLI	■	■	■	■	Message Waiting function
	16DLI	■	■	■	■	
	DLI	■	■	■	■	
Service	AA	■	■	■	■	
	SVMi-8	■	■	■	■	
	SVMi-16			■	■	
	VDIAL			■	■	
Smart Media Card	OfficeServ 500 MP S/W	■	■	■	■	Separate management for M/L and MCP/MCP2

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4 TECHNOLOGY

4.1 MCP Card

4.1.1 Memory

The system operates using stored program control. This program is stored on a SmartMedia card inserted into the Main Control Processor card(MCP) and contains a minimum of eight Megabytes of NAND-Flash memory. Optional, larger capacity, SmartMedia cards are also available to provide a backup customer database and a backup operating program. The system boots from a 256 Kbytes boot ROM and downloads the operating program into four megabytes of DRAM on the Main Control Processor(MCP) card. The four megabytes of DRAM are increased to 8 megabytes with the addition of the Inter Processor communications Module(IPM) in an expanded system. The customer database is stored in 1.0 Mbytes of non-volatile SRAM for a single cabinet system. This expands to 2.5 Mbytes with the IPM installed and to 3.0 Mbytes with the addition of the optional LAN interface module(LAN).

4.1.2 Microprocessors

The OfficeServ 500 uses distributed processing. Its primary processor is a 16 bit (32 bit core) Motorola MC68302 operating at a clock speed of 25 MHz on the MCP card. This provides all the processing necessary for a single cabinet system. In a multi cabinet system the secondary level of processing is on the SCP card for the first cabinet and on the LCP cards for the expansion cabinets. These secondary processors are MC68302 processors running at 16 MHz and provide local control of each cabinet. Messaging between the primary and secondary processors is handled by a MC68302 processor running at 25 MHz located on the Inter Processor communications Module(IPM) PCB. The tertiary level of processing is done in the phones. The digital phones use a Hitachi H8 processor for data communication within the system.

4.2 MCP2 Card

4.2.1 Memory

The system operates using stored program control. This program is stored on a SmartMedia card inserted into the Main Control Processor card(MCP2) and contains a minimum of 16Megabytes of NAND-Flash memory. Optional, larger capacity, SmartMedia cards are also available to provide a backup customer database and a backup operating program. The system boots from a 512 Kbytes boot ROM and downloads the operating program into 64 megabytes of DRAM on the Main Control Processor(MCP2) card. The customer database is stored in 4 Mbytes of non-volatile SRAM for a single cabinet system.

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4.2.2 Microprocessors

The OfficeServ 500 uses distributed processing. Its primary processor is a 32 bit Motorola MPC860 operating at a clock speed of 80 MHz on the MCP2 card. This provides all the processing necessary for a single cabinet system. In a multi cabinet system the secondary level of processing is on the SCP2 card for the first cabinet and on the LCP2 cards for the expansion cabinets. These secondary processors are MC68302 processors running at 16 MHz and provide local control of each cabinet. The Inter Processor communications Module(IPM) PCB is not supported.
The tertiary level of processing is done in the phones. The digital phones use a Hitachi H8 processor for data communication within the system.

5 PROGRAMMING

The OfficeServ 500 is a self-configuring system. This means that immediately after applying power, the OfficeServ 500 reads the types and locations of all installed interface cards and phones and assigns default data to them. This data provides for system operation within a few minutes after applying power. All trunks and stations are assigned three or four digit numbers according to the settings of the switches on the MCP card and the default numbering LAN. This numbering LAN is flexible and may be changed to suit customer requirements. The installing technician customizes this default data to meet the end user's requirements.

The system can be programmed from any LCD display phone without interrupting system operation. There are three levels of programming: technician, customer and station. The technician level has access to all programs and can allow the customer access to system programs as needed. Technician and customer access levels are controlled by a different security passcodes and access procedure.

The OfficeServ 500 also allows the use of a proprietary computer program called DPAP-PCMMC. This permits a technician to program the system using a personal computer. DPAP-PCMMC can be used on-site to modify the customer database or to download(save) the entire customer database to a file. This file can then be saved as a backup and be uploaded when required to restore the database.

Through the use of modems, DPAP-PCMMC can access the OfficeServ 500 system remotely(off-site) to make database changes or perform uploads or downloads of the customer database as if the technician were on-site.

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CHAPTER 2

Hardware Descriptions

This chapter describes the hardware of the OfficeServ 500 system as follows:

- System Cabinets
- Common Control Cards
- Interface Cards
- Station Equipment

1 SYSTEM CABINETS

The cabinets that make up the OfficeServ 500 system are of metal construction and may be utilized as either as an expansion cabinet or as a main cabinet/button service unit(KSU). The cabinets may be used singly or may be stacked up to three(3) high to achieve maximum capacity. A single cabinet may be wall mounted for smaller applications or alternatively the system may be mounted in a standard nineteen inch(19) equipment rack after removal of the side panels and their supporting brackets. Each cabinet is comprised of the following :

- Eight interface card slots
- One dual purpose interface card/signal processor slot
  (see 'Size and Configuration' section.)
- One processor card slot
- Two power supply slots
- One IOM board slot for use when the cabinet is the main cabinet/KSU
  (see 'IOM Board' section)
- AC power connector
- DC power(Battery Backup) connector

The first power supply slot must be occupied by a PSU-B power supply to supply sufficient power to all 10 slots(8 interface, one dual purpose and one processor slot). The second power supply slot can be occupied by either a PSU 60 or a PSU-B. Do not install a PSU 40 in any PSU slot.

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2 COMMON CONTROL CARDS

2.1 Processor Cards

The OfficeServ 500 requires a processor card or cards in order to operate. In a single cabinet OfficeServ 500 system, only one processor card, the Main Control Processor (MCP or MCP2), is required. When the system is expanded to two or three cabinets a second, Signal Control Processor(SCP or SCP2), is required for the main cabinet to assist the MCP and each expansion cabinet requires its own Local Control Processor(LCP or LCP2). These processor cards are described below.

2.1.1 Main Control Processor (MCP/MCP2)

MCP CARD

The Main Control Processor(MCP) is installed in a dedicated processor slot, slot 10, of the first cabinet and has positions for three daughter boards. The first daughter board(LOC1) can support one of four types of daughter board, a Multi-Frequency Module(MFM), a Switch/Conference Module(SCM), an R2/CID Module(RCM), in a single cabinet system and is required to support the Expanded Switching Module(ESM) in a multiple cabinet system. The second daughter board position(LOC2) can support the MFM, the SCM, the RCM or the Local Area Network(LAN) board in a single cabinet system. This position is also required to support the Inter Processor communications and Memory(IPM) daughter board in a multiple cabinet system or a system running the L version software. The third daughter board(LOC3) can support a Miscellaneous(MISC) daughter board or a Local Area Network(LAN) daughter board in a single cabinet system or a LAN daughter board in a multiple cabinet system.

MAIN CONTROL PROCESSOR(MCP) DAUGHTER BOARD CAPABILITIES	
Position	**Type of Daughter Boards allowed per position**
LOC1	MFM, SCM, RCM , ESM*
LOC2	MFM, SCM, RCM, LAN , IPM**
LOC3	MFM, SCM, RCM, LAN , MISC

* The ESM must be installed in this position in a Multiple Cabinet System.

** The IPM must be installed in this position in a Multiple Cabinet System or a Single Cabinet System running L version software.

Only one of any type of daughter board may be installed on any processor card.

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MCP2 Card

The Main Control Processor2(MCP2) card is the main processor card with a 32 bit processor, and controls the overall operation of the OfficeServ 500 system.
MCP2 card is mounted on the MCP/LCP slot of the OfficeServ 500-M or OfficeServ 500-L basic cabinet.
When consisting the OfficeServ 500-L system, daughter boards such as IPM board and LAN board is not mounted since the MCP2 card is supported by LAN and HDLC communication with SCP2 and LCP2 unlike the MCP card.

MAIN CONTROL PROCESSOR(MCP2) DAUGHTER BOARD CAPABILITIES	
Position	**Type of Daughter Boards allowed per position**
LOC1	MFM, SCM, RCM, ESM*
LOC2	MFM, SCM, RCM
LOC3	MFM, SCM, RCM , MISC

* The ESM must be installed in this position in a Multiple Cabinet System.

The differences in hardware between the MCP card and the MCP2 card are shown below.

Table 2.1 Differences between MCP Card and MCP2 Card

Item	MCP	MCP2
Processor	16 bit, 25 MHz	32 bit, 80 MHz
SIO Port(Asynchronous)	Basic : 2 port(SIO1, SIO2) Expansion : 2 port(SIO3, SIO4)	Basic 2 port(SIO2, SIO3)
SmartMedia Card	16 MB Capacity expandable if needed	32 MB Capacity expandable if needed
SRAM	Basic : 1 MB Expansion : 2MB(IPM, LAN)	Basic : 4 MB
SDRAM	Basic : 4 MB Expansion : 4MB(IPM)	Basic : 64 MB
LAN	Basic : N/A With LAN board : 10 Mbps	Basic : 10/100 Mbps
HDLC Port for IPC	Basic : N/A Supported by IPM board	Basically mounted
Time switch	Basic : 512x512 Ch. Expansion : 1024x1024 Ch.	Basic : 512x512 Ch. Expansion : 1024x1024 Ch.
Daughter Board Mounting	LOC1, LOC2, LOC3	LOC1, LOC2, LOC3

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2.1.2 Switch Control Processor (SCP/SCP2)

The Switch Control Processor(SCP/SCP2) is installed in slot 9 of the KSU and reduces the available universal card slots to eight. The SCP/SCP2 card is required when the system is to be expanded beyond a single cabinet. The SCP/SCP2 card has positions for three optional daughter boards.
The first daughter board position(LOC1) can support one of three types of daughter board, a Multi-Frequency Module(MFM), a Switch/Conference Module(SCM) or an R2/CID Module(RCM).
The second daughter board position(LOC2) can support the MFM, the SCM, the RCM or the MISC. The third daughter board position(LOC3) can support one of the three types of daughter board, a Multi-Frequency Module(MFM), a Switch/Conference Module(SCM) or an R2/CID Module(RCM).
Only the internal memory differs in hardware between the SCP and SCP2.
The internal DRAM memory of SCP is 2 MB, while the internal DRAM memory of SCP2 is 4 MB.

SWITCH CONTROL PROCESSOR(SCP/SCP2) DAUGHTER BOARD CAPABILITIES	
Position	**Type of Daughter Boards allowed per position**
LOC1	MFM, SCM, RCM
LOC2	MFM, SCM, RCM, MISC
LOC3	MFM, SCM, RCM

Only one of any type of daughter board may be installed on any processor card.

2.1.3 Local Control Processor (LCP/LCP2)

The Local Control Processor(LCP/LCP2) card is installed in a dedicated processor slot, slot 10, of each Expansion KSU and does not reduce the available universal card slots of that cabinet.
The LCP/LCP2 card has positions for three daughter boards. The first daughter board position(LOC1) can support one of two types of daughter board, a Multi-Frequency Module(MFM), or an R2/CID Module(RCM). The second daughter board position(LOC2) can support the MFM, the RCM or the MISC. The third daughter board position(LOC3) can support one of two types of daughter board, a Multi-Frequency Module(MFM), or an R2/CID Module(RCM).
The internal DRAM memory of the LCP card is 2 MB, while the internal DRAM memory of the LCP2 card is 4 MB.(Only the internal memory differs between the LCP and LCP2 card.)

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LOCAL CONTROL PROCESSOR(LCP/LCP2) DAUGHTER BOARD CAPABILITIES	
Position	**Type of Daughter Boards allowed per position**
LOC1	MFM, RCM
LOC2	MFM, RCM, MISC
LOC3	MFM, RCM

Only one of any type of daughter board may be installed on any processor card.

2.2 Processor Card Daughter Boards

There are seven types of daughter board that fit on the various processor cards. Some daughter boards will only work on the Main Control Processor(MCP/MCP2) and the rest will work on any processor card. The various daughter boards and their uses are described below.

2.2.1 Inter Processor Communications And Memory Module(IPM)

This daughter board installs in position LOC2 of the MCP and is required to provide the inter processor messaging channels in a multiple cabinet system. The IPM daughter board also carries the expanded SRAM and DRAM needed for multiple cabinet systems and single cabinet systems running L version software.

The IPM daughter board consists of the following :

- 1 MC68302 25 MHz Processor(for message handling)
- 1.5 megabyte SRAM(for customer database)
- 4 megabytes DRAM(for the operating system and scratch pad)
- 3 synchronous communications ports(to communicate with the SCP and the LCP's)

2.2.2 Local Area Network (LAN)

This daughter board installs in either position LOC2 or LOC3 of the MCP and provides a 10BASE-T Ethernet LAN connection. In addition to the LAN connection, the LAN board provides 0.5 megabytes of SRAM to support the increased I/O functions of this card. The LAN board also provides the hardware to drive the third and fourth Serial I/O ports in the main cabinet and support for the V90 internal modem.

The LAN daughter board consists of the following :

- 10BASE-T Ethernet Interface
- 0.5 Mbytes SRAM(for expanded database functions)
- 2 Serial I/O ports(maximum asynchronous speed 38.4 Kbps)

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2.2.3 Switch And Conference Module (SCM)

The Switch and Conference Module installs on the MCP/MCP2 or the SCP/SCP2 processor cards. In a single cabinet system the SCM can be installed in LOC1, however in a multiple cabinet system the SCM must be installed on the SCP/SCP2 as the MCP must have the ESM and IPM daughter boards.
The system, regardless of size can only support one SCM daughter board. Adding a SCM daughter board to the system increases the number of conference paths in the system from six to twenty four. In addition, the SCM also adds twelve channels for DTMF and tone detection.

- Twelve(12) channels for DTMF Receiver and tone detection
- Eighteen(18) conference paths(for a system total of 24)

2.2.4 Multi-Frequency Module (MFM)

The MFM Module installs in any position of any of the processor cards. The main purpose of the RCM daughter board is to provide DSPs for DTMF and tone detection.

The receivers are also used for DID trunks, E & M trunks, DISA, DNIS and ANI. Twelve(12) channels for DTMF Receiver and tone detection.

2.2.5 Expanded Switch Module (ESM)

The Expanded Switch Module is used to expand the time switch matrix from 512 channels in a single cabinet to the 1024 channels required for a multiple cabinet system.

The ESM daughter board installs in position LOC1 and consists of the following : 1024 x 1024 time switch

2.2.6 R2/CID Module (RCM)

The R2/CID Module installs in any position on any of the processor cards. The main purpose of the RCM daughter board is to provide Caller ID decoders for use with that telephone company provided service over analog trunks. A secondary use of the RCM is to provide R2 MFC senders and receivers to the system although these are not used in the US. The system can support up to three of these cards for a total of 42 CID receivers.

The RCM consists of fourteen(14) CID receivers(for use with Caller ID on analog trunks)

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2.2.7 Miscellaneous Function Module (MISC)

The Miscellaneous Function Module(MISC) daughter board installs in position LOC3 on the MCP/MCP2 card in a single cabinet system or in position LOC2 on the SCP/SCP2 or position LOC2 on the LCP/LCP2 card(s) in a multiple cabinet system. The MISC daughter board is used to provide external music on hold/audio inputs(radios, digital announcers, etc.), external paging auto output, loud bell, common bell and assignable dry contact closures. The system can support up to three of these daughter boards, one on the MCP/MCP2 or SCPs/SCP2s and one on each of the LCPs/LCP2s.

The MISC consists of the following :

- Two(2) external music/audio inputs
- One(1) external paging audio output
- One(1) loud bell relay contact closure
- One(1) common bell relay contact closure
- Two(2) software assignable relay contact closures

2.3 SmartMedia Cards

An OfficeServ 500 system must have a SmartMedia card installed in the main control processor(MCP/MCP2) as the SmartMedia card contains the system operating software. The SmartMedia card can also be used to store a backup customer database to supplement the database stored on the MCP/MCP2 card. In addition the SmartMedia card can store backup copies of the operating software for the SCP/SCP2, LCP/LCP2, TEPRI, and LAN cards.

2.4 Input-Output Module(IOM) Board

The Input Output Module board installs in the first cabinet and provides access to the two serial I/O ports on the Main Control Processor(MCP/MCP2) card. The IOM board also has provision to have an internal 56K/V.90 installed on it(see ‘Modem Daughter Board’ section). When the MCP card is equipped with a LAN daughter board, the IOM board provides access to the LAN interface in addition to the two serial I/O ports carried on the LAN daughter board.

2.5 Modem Daughter Board

The Modem daughter board installs on the Input Output Module card. The modem provides a 56K/V90 connection to the system for use for remote administration and/or programming. The card has a default extension number of 3999 and eliminates the need for an external modem, serial cable, single line telephone port and serial I/O port on the system.

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3 INTERFACE CARDS

These cards provide the interface connections for telephone lines and stations to the KSU and expansion cabinets. These cards fit into the universal card slots to configure the system as required. OfficeServ 500 interface cards are encased in a static dissipative ABS plastic shell to protect the PCB during handling.

3.1 Trunk Cards

3.1.1 Trunk B

This card contains four loop start Trunk line interface circuits with Trunk line disconnect detection. It also contains the circuitry needed for MPD or PRS. It can be inserted in any universal card slot in all cabinets.

3.1.2 6 TRK

This card contains six loop start Trunk line interface circuits with Trunk line disconnect detection. It also contains the circuitry needed for MPD or PRS. It can be installed in any universal card slot in all cabinets.

3.1.3 8 TRK

This card contains eight loop start Trunk line interface circuits with Trunk line disconnect detection. It can be inserted in any universal card slot in all cabinets.

3.1.4 E & M

This card contains four 2 wire E & M tie lines, type five interface configuration. It can be inserted in any universal card slot in all cabinets. This card can be used for two way DID calling.

3.1.5 TEPRI

When programmed as a E1 this card provides up to 30 trunk circuits in any combination of the following :

- Loop start lines
- DID(Direct Inward Dialling)
- E & M tie lines or two way DID calling

When the card is programmed as a PRI it will provide 30 bearer channels and 1 data channel(30B+D). This card can be installed in any of the first three slots of any cabinet.

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3.1.6 4 BRI (Basic Rate Interface-4BRI)

The 4 BRI card supports 4 trunk or station level ISDN Basic Rate Interface(e.g., 2B plus D) circuits. The 4BRI can be inserted in any universal slot.

3.1.7 ITM3 (IP Telephony Module)

The ITM3 card supports 8 VOIP channels with provision for a daughter board hosting a further 8 channels for a maximum of 16 channels per ITM3 card.
These channels are H.323 compliant and are used in conjunction with either the G.723 or G.729 voice compression protocols. The ITM3 card may be installed in any universal card slot.

MGI3 Card

The MGI3 card supports the VoIP Gateway, which enables telephone calls through the Internet.
When mounted with the ITM3D board, the MGI3 card can support up to 16 Internet telephone(VoIP) ports by adding 8 channels of Internet telephone ports.

The main features and characteristics of the MGI3 card are summarized below.
- Flash memory and data memory basically mounted for program
- Echo cancellation function supported preventing echo sounds
- Silence suppression function supported preventing data transfer on the network for the brief silent intervals between words during calls.
- Supports G.711, G.723.1(6.3 k) and G.729A for Audio CODEC
- Supports T.38 regarding Fax

MGI1/MGI2 Card

The MGI card supports the VoIP Gateway, which enables telephone calls through the Internet. The MGI1 card serves as a gateway, which connects calls between the legacy terminal(SLI/DLI) and the IP terminal(IP phone), and provides the Internet telephone(VoIP) port with 16 channels.
The MGI2 card supports calls connecting to a Remote System station, IP phones for telecommuting, or to the central office, and provides the Internet telephone(VoIP) port with 16 channels.
There are two types of MGI card, the MGI1 card and the MGI2 card, which were classified by their serviceable ranges.
The main features and characteristics of the MGI card are summarized below.
- Flash memory and data memory basically mounted for program
- Echo cancellation function supported preventing echo sounds
- Silence suppression function supported preventing data transfer on the network for the brief silent intervals between words during calls.
- MGI1 : Supports G.711
- MGI2 : Supports G.711 and G.729
- Echo Cancellation : 64ms(ITU-T G.165, G.168)

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3.2 Station Cards

3.2.1 DLI

This card is an eight circuit digital station interface card that provides 2B+D service when installed in any universal card slot in all cabinets.

3.2.2 16DLI

This card is a sixteen circuit digital station interface card that provides 1B+D service when installed in any universal card slot in all cabinets. Phone daughter boards will not work when connected to this card.

The circuit on a FKDBS does not provide a disconnect signal or have the over-voltage protection necessary for OPX operation.

3.2.3 SLI

This card is a four circuit analog station interface for industry standard single line telephones or other analog peripheral devices(voice mail, etc.). Each circuit is equipped with an analog DTMF receiver and provides the over-voltage protection required for connection to telephone company off premises extension circuits(OPX). It can be inserted in any universal card slot in all cabinets. Each port on this card is intended for connection to one telephone. Connecting multiple telephones to a port may result in incorrect operation or damage to the card. See the installation manual ‘Chapter 3 for details.

3.2.4 8SLI

This card is an eight circuit analog station interface for industry standard single line telephones or other analog peripheral devices. The 8SLI does not contain any over-voltage protection and is not qualified as OPX. It also does not contain DTMF receivers, but shares system DSP resources. It can be inserted in any universal card slot in all cabinets. Each port on this card is intended for connection to one telephone. Connecting multiple telephones to a port may result in incorrect operation or damage to the card. See the installation manual ‘Chapter 3 for details.

3.2.5 16SLI

This card is a sixteen circuits analog station interface for industry standard single line telephones or other analog peripheral devices. The 16SLI does not contain any over-voltage protection and is not qualified as OPX. It also does not contain DTMF receivers, but shares system DSP resources. It can be inserted in any universal card slot in all cabinets. Each port on this card is intended for connection to one telephone. Connecting multiple telephones to a port may result in incorrect operation or damage to the card. See the installation manual ‘Chapter 3 for details.

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3.2.6 8MWSLI

This card is an eight circuit analog station interface for industry standard single line telephones that require operation of an industry standard message waiting lamp with a voltage range of 85~96 VDC. The lamp can be programmed to be on continuously or flash at a programmable rate of 100ms to 2000ms ON/OFF times. The 8MWSLI does not contain any over-voltage protection and is not qualified as OPX. It also does not contain DTMF receivers, but instead shares the system DSP resources. It can be inserted in any universal card slot in all cabinets. Each port on this card is intended for connection to one telephone. Connecting multiple telephones to a port may result in incorrect operation or damage to the card. See the installation manual ‘Chapter 3 for details.

3.2.7 16MWSLI

This card is a sixteen circuit analog station interface for industry standard single line telephones that require operation of an industry standard message waiting lamp with a voltage range of 85~96 VDC. The lamp can be programmed to be on continuously or flash at a programmable rate of 100ms to 2000ms ON/OFF times. The 16MWSLI does not contain any over-voltage protection and is not qualified as OPX. It also does not contain DTMF receivers, but instead shares the system DSP resources. It can be inserted in any universal card slot in all cabinets. Each port on this card is intended for connection to one telephone. Connecting multiple telephones to a port may result in incorrect operation or damage to the card. See the installation manual ‘Chapter 3 for details.

3.3 Other Cards

3.3.1 Auto Attendant

This optional card can be used for either the Automated Attendant, Uniform Call Distribution or a combination of both. For more information about the Automated Attendant and UCD, see ‘Chapter 4 , ‘System Features’ section.

3.3.2 SVMi-8

The SVMi-8 Voice Mail system is a fully integrated Auto Attendant/Voice Mail/Fax System on a single DCS circuit card. This optional card is designated the SVMi-8 and provides 4 or 8 channels of communication. Only one card is permitted per system and it can be installed in any universal card slot.
This fully featured self contained system is connected directly to the DCS data bus and communicates with the DCS processor. This design means that installation time is minimized, operation is streamlined and many features can be implemented that are not normally possible with older conventional stand alone Voice Mail/Auto Attendant systems.

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All power to run this self contained system comes from the DCS telephone system power supply. Each of the DCS power supply is rated according to the number of stations it will support. When SVMi-8 is installed it counts as(8) eight stations of the PSU rating regardless of the number of Voice Processing Modules installed.

3.3.3 SVMi-16

Unlike the previous voice mails and automatic relay systems based on PC, SVMi-16 is installed inside the telephone equipment and is operated as a part of the telephone system. One card shall be used per system, and the mounting location is not limited.

3.3.4 8WLI (For future application)

The 8WLI card provides wireless solution to the OfficeServ 500 system, and provides cable interface between the system and WLAN Base Station(WBS24), which is the access point for WLAN.
A single 8WLI board supports up to 32 voice channels.

The main features of the 8WLI card are summarized below.

- Provides cable interface(voice and signaling data) between the access point and system
- Supports 32 voice channels per 8WLI card
- Supplies or disconnects DC -48V power supplied to WBS24
- Performs initialization to service VoIP over WLAN
- Manages information on all voice terminals and provides service only for the authorized terminals
- Initial registration service for the wireless IP phone(WIP-5000M)
- Call service for voice terminals
- Supports mobility and handover between WBS for voice terminals
- Provides interface with the system's main CPU board through IPC

3.3.5 VDIAL

VDIAL is mounted on the universal slot of the OfficeServ 500 system, and is the module used for making calls by voice rather than pressing the phone buttons.
The module consists of the RAM where the parameter of multiple words is saved, the DSP device that calculates the similarity between each word and the speaker's voice, the ROM where the program for transmitting/receiving messages between the calculation algorithm program and the main device program is saved, and other devices.

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4 STATION EQUIPMENT

4.1 iDCS Series Equipment

4.1.1 28 Button iDCS phone

- 32 character display(2 x 16) with three associated soft buttons and a scroll button
- 28 programmable buttons with tri-colored lights
- Four fixed function buttons
- Terminal Status Indicator
- Built-in speakerphone
- Eight selectable ring tones
- UP/DOWN buttons for digital control of speaker, handset and ringer volumes
- Desk- or wall-mounted
- Available in dark gray or light gray

Figure 2.1 28 Button iDCS phone

4.1.2 18 Button iDCS phone

- 32 character display(2 x 16) with three associated soft buttons and a scroll button
- 18 programmable buttons with tri-colored lights
- Four fixed function buttons
- Terminal Status Indicator
- Built-in speakerphone
- Eight selectable ring tones
- UP/DOWN buttons for digital control of speaker, handset and ringer volumes
- Desk or wall-mounted Available in dark gray or light gray

Figure 2.2 18 Button iDCS phone

4.1.3 8 Button iDCS phone

- 32 character display(2 x 16) with three associated soft buttons and a scroll button
- 8 programmable buttons with tri-colored lights
- Four fixed function buttons
- Terminal Status Indicator
- Built-in speakerphone
- Eight selectable ring tones
- UP/DOWN buttons for digital control of speaker, handset and ringer volumes
- Desk-or wall-mounted
- Available in dark gray or light gray

Figure 2.3 8 Button iDCS phone

4.1.4 12 Button Large LCD phone (DS-5012L)

- The DS-5012L phone is Large LCD phone
- It supports data transfer, handset call and Full-Duplex speakerphone.
- The USB Interface(shared with mobile phones) is also supported, and various features are provided through the LCD.
- The Navigation Buttons are provided along with the common buttons for convenient button control, and the phone book and recording calls features are also provided.

Figure 2.4 DS-5012L

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4.1.6 14 Button 2 Line LCD phone

- The DS-5014D phone is 2 line LCD digital phone
- It has 14 programmable buttons for the subscriber to register the features preferred.
- This phone supports handset calls and speakerphone calls
- It is equipped with the navigation button that enables you to use the phone functions(such as recently called numbers, recently received numbers, searching numbers by name, setting forwarding calls, inquiring speed buttons, and setting alarm) easily.
- KDB-D/S/F connection is also supported.

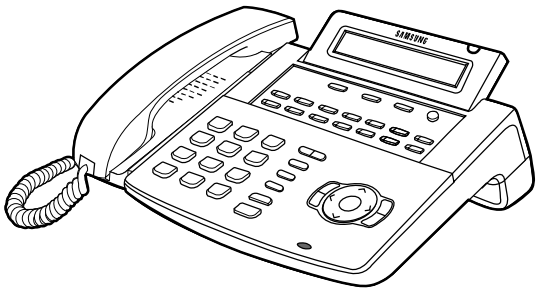

Figure 2.5 DS-5014D

4.1.7 21 Button 2 Line LCD phone

- The DS-5021D phone is 2 line LCD digital phone
- It has 21 programmable buttons for the subscriber to register the features preferred.
- This phone supports handset calls and speakerphone calls
- It is equipped with the navigation button that enables you to use the phone functions(such as recently called numbers, recently received numbers, searching numbers by name, setting forwarding calls, inquiring speed buttons, and setting alarm) easily.
- KDB-D/S/F connection is also supported.

Figure 2.6 DS-5021D

4.1.8 12 Button Large LCD IP phone

- The ITP-5012L phone is a Large LCD IP phone, which displays various information on the LCD screen and is equipped with 12 selectable buttons.
- The ITP-5012L phone provides voice communication through the previously installed data network line, making installation of additional telephone lines unnecessary.
- This phone is equipped with the Dial button, Volume button, Conference button. The Transfer button used for transferring a busy call to another subscriber, the Hold button, the Speaker button for speaker calls, and the navigation button that allows you to use the phone functions easily.
- The Screen button for additional expansion function and the Scroll button for easily searching long contexts displayed on the LCD screen are also provided.
- The status indicator lets you know when a message or a call arrives, and each LED displays if the Transfer/Hold /Speaker button is pressed, and the LCD screen displays the call status and various information.

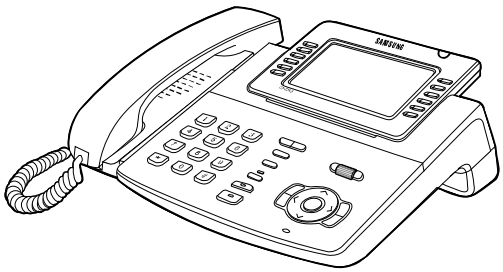

Figure 2.7 ITP-5012L

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4.1.9 14 Button/21 Button 2 Line LCD IP phone

- The ITP-5000D series phone has 14/21 programmable buttons for the subscriber to register the features preferred. Screen and is equipped with 12 selectable buttons.
- This phone is equipped with the Dial button, Volume button, Conference button. The Transfer button used for transferring a busy call to another subscriber, the Hold button, the Speaker button for speaker calls, and the navigation button that allows you to use the phone functions easily.
- The LCD screen displays the call status and various information, and the status indicator notifies the status of the phone in the three colors of red, green, and yellow.

Figure 2.8 ITP- 5014D

Figure 2.9 ITP- 5021D

4.1.10 64 Button iDCS AOM

- 64 programmable buttons with red lights
- A maximum of 2 can be assigned to any phone to provide additional programmable buttons
- A maximum of 4 per DCS System
- Available in dark gray or light gray

Figure 2.10 64 Button iDCS AOM

4.1.11 14 Button iDCS AOM

- 14 programmable buttons with red lights
- A maximum of one can be assigned to any phone to provide additional programmable buttons
- Available in dark gray or light gray

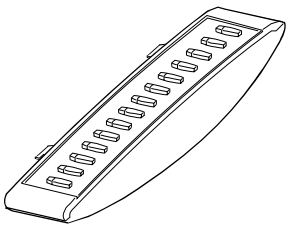

Figure 2.11 14 Button iDCS AOM

4.1.12 DS-5064B (64B AOM)

- AOM is an accessory type digital station that extended the button and LED of a digital phone.
- DS-5064B is the improved model of the OfficeServ 500 system 64B. Various functions preferred by you can be set on each button of DS-5064B AOM.

Figure 2.12 DS-5064B

4.1.13 WIP-5000M (Mobile phone)

- The WIP-5000M(Wireless IP phone Mobile type) mobile phone is an in-plant wireless mobile phone,
- It allows voice calls through the IEEE802.11b wireless LAN. The WIP-5000M mobile phone serves as a wireless IP phone that transmits/receives in a packet form satisfying the wireless LAN standard(Voice over WLAN) by voice compression.
- Handover is supported when moving between APs(WBS24), and data terminals such as laptop PC can also be used in the same area.
- The message service, which is supported in the iDCS system, is also supported.

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4.2 DCS Series Equipment

4.2.1 LCD 24B phone

- Built-in speakerphone
- 24 programmable buttons(16 with tri-colored LEDs)
- Four fixed function buttons
- 32 character display(2 x 16) with three associated soft buttons and a scroll button
- UP/DOWN buttons for digital control of speaker, handset and ringer volumes
- Eight selectable ring tones
- Desk-or wall-mounted
- Available in almond or charcoal

Figure 2.13 LCD 24B Euro phone

4.2.2 STD 24B phone

- Built-in speakerphone
- 24 programmable soft buttons(16 with tri-colored LEDs)
- Four fixed function buttons
- UP/DOWN buttons for digital control of speaker, handset and ringer volumes
- Eight selectable ring tones per phone
- Desk-or wall-mounted
- Available in almond or charcoal

Figure 2.14 STD 24B phone

4.2.3 STD 12B phone

- Built-in speakerphone
- 12 programmable soft buttons(16 with tri-colored LEDs)
- Four fixed function buttons
- UP/DOWN buttons for digital control of speaker, handset and ringer volumes
- Eight selectable ring tones per phone
- Desk-or wall-mounted
- Available in almond or charcoal

Figure 2.15 STD 12B phone

4.2.4 6B LCD Model phone

- Built-in speakerphone
- 6 programmable buttons
- Four fixed function buttons
- UP/DOWN buttons for digital control of speaker, handset and ringer volumes
- Eight selectable ring tones per phone
- Desk-or wall-mounted Available in almond or charcoal

Figure 2.16 6B LCD Model phone

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4.2.5 48 Button AOM

- 48 programmable buttons
- Available in almond or charcoal
- One or two can be assigned to any DCS phone to provide additional programmable buttons

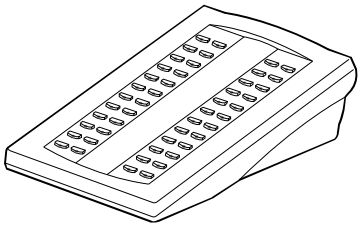

Figure 2.17 48 Button AOM

4.2.6 S-phone

DS 24S phone

- 8 programmable buttons with tri-coloured lights : Used to call stations directly, to indicate busy conditions of other stations, for One Touch dialling and many other system features.
- Volume control buttons : Used to set independent levels for handset, speaker, background music, ring and page volumes.
- Transfer button
- Redial button
- Microphone : For hands-free operation.
- Hold button
- Speaker button
- 16 programmable buttons with red lights : Used to call stations directly, to indicate busy conditions of other stations, for One Touch dialling and many other system features.
- Speaker : For hands-free operation and ringing.

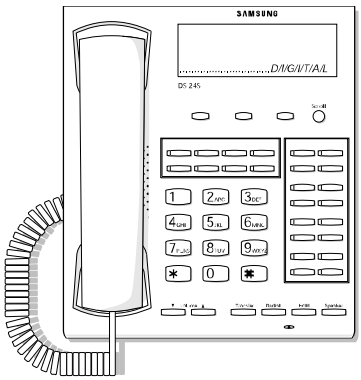

Figure 2.18 DS 24S phone

DS 24D phone

- 8 programmable buttons with tri-coloured lights : Used to call stations directly, to indicate busy conditions of other stations, for One Touch dialling and many other system features.
- Volume control buttons : Used to set independent levels for handset, speaker, background music, ring and page volumes.
- Transfer button
- Redial button
- Microphone : For hands-free operation.
- Hold buttons
- Speaker button
- 16 programmable buttons with red lights : Used to call stations directly, to indicate busy conditions of other stations, for One Touch dialling and many other system features.
- Speaker : For hands-free operation and ringing.
- Scroll button : Used to scroll through displays.

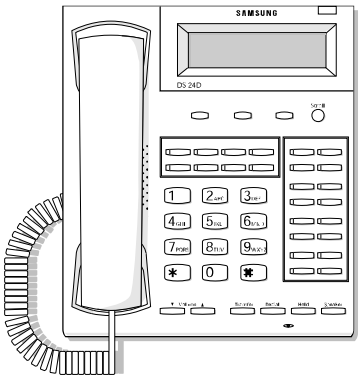

Figure 2.19 DS 24D phone

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4.2.7 Economic phone

- Volume control buttons : Used to set independent levels for handset, speaker, background music, ring and page volumes.
- Transfer button
- Redial button
- Microphone : For hands-free operation.
- Hold buttons
- Speaker button
- Speaker : For hands-free operation and ringing.

Figure 2.20 Economic phone

4.2.8 Door phone Interface Module(DPIM) & Door phone

- The DPIM adapts any DLI circuit for use with the door phone unit
- Commonly used to request entry through locked doors(interior or exterior) or as a room monitoring box
- Provides contact control to be used with customer-provided electric door lock
- Door phone is wall-mounted
- Door phone is weather resistant

Figure 2.21 Door phone Interface Module **Figure 2.22 Door phone**

4.2.9 Single Line Telephone

- Data port : selectable to share station extension or utilize a separate extension
- On hook dialling
- Message Waiting/Ring Indicator
- Desk or wall mounted
- Ring volume control,
- Four available ring tones.
- Available in almond and black

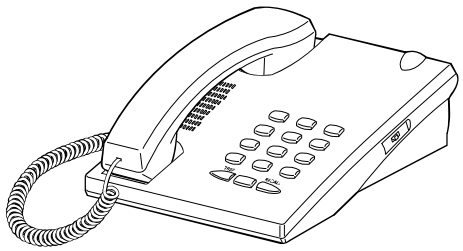

Figure 2.23 Single Line Telephone

This single line telephone set is FCC approved for direct connection to the public telephone network.
FCC # A3LKOR-24627-TE-T REN 0.9B UL LISTED 19X9 FILE # ETI 8093

4.2.10 Serial Interface Module (SIM)

Provides an RS232 connection required for SMDR and PC programming features
Connects to any DLI circuit

4.2.11 CTM (Computer Telephony Interface Module)

Provides an Serial Interface(DB-9) required for CTI facility(TAPI application)
Supports DLI interface for pair operation with PC

4.1.12 KDB-DLI

This is a small daughter board that can be installed only in the 12 or 24 button phone. The KDB-DLI will provide one additional DLI circuit for the connection of any digital station device such as a phone, add-on module or DPIM. This KDB-DLI will only operate when the phone is connected to an 8 port DLI card so it can use the second B channel. Each port on this card is intended for connection to one telephone. Connecting multiple telephones to a port may result in incorrect operation or damage to the card. See the installation manual ‘Chapter 3 for details.

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4.1.13 KDB-SLI

This is a daughter board that can be installed only in the 12 or 24 button phone. The KDB-SLI will provide one additional SLI circuit for the connection of any standard telephone device. This KDB-SLI will only operate when the phone is connected to an 8 port DLI card it can use the second B channel. Each port on this card is intended for connection to one telephone. Connecting multiple telephones to a port may result in incorrect operation or damage to the card. See the installation manual ‘Chapter 3 for details.

The circuitry on a KDB-SLI does not provide a loop open disconnect signal or have the over-voltage protection necessary for OPX operation.

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CHAPTER 3

Specifications

This chapter describes the technical data for the OfficeServ 500 hybrid/button telephone system as follows :

- Electrical Specifications(PSU-B)
- Electrical Specifications(PSU 60)
- Dimensions and Weights
- Environmental Limits
- Cable Requirements
- System Tones
- Phone LED Indications
- Reserve Power Duration Estimates

1 ELECTRICAL SPECIFICATIONS (PSU-B)

AC INPUT	100-120(88-132) VAC(48-63 Hz)* 220-240(180-260) VAC(48-63 Hz)
POWER CONSUMPTION(MAX)	150 WATTS MAX. PER PSU FUSE RATING 5 AMP
BTU RATING(MAX)	XX BTU/MINUTE
DC OUTPUT	+5 VOLTS 7.0 AMPS MAX -5 VOLTS 1.5 AMPS MAX -48 VOLTS 1.4 AMPS MAXIMUM -54 VOLTS Charger 0.45 AMPS MAX

* Normal factory setting

2 ELECTRICAL SPECIFICATIONS (PSU 60)

AC INPUT	120(88-132) VAC(48-63 Hz)* 220(180-260) VAC(48-63 Hz)
POWER CONSUMPTION(MAX)	120 WATTS MAX. PER PSU FUSE RATING 3 AMP
BTU RATING(MAX)	6.8 BTU/MINUTE
DC OUTPUT	+5 VOLTS 5.0 AMPS MAX -5 VOLTS 0.5 AMPS MAX -48 VOLTS 1.4 AMPS MAXIMUM -56 VOLTS Charger 0.45 AMPS MAX

* Normal factory setting

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3 DIMENSIONS AND WEIGHTS

OfficeServ 500 BASIC SYSTEM	HEIGHT	WIDTH	DEPTH	WEIGHT
SINGLE CABINET	17.5"	22.5"	12"	35 lb.
EXPANDED SYSTEM : TWO CABINETS	35"	22.5"	12"	70 lb.
EXPANDED SYSTEM : THREE CABINETS	52.5"	22.5"	12"	105 lb.
DIGITAL PHONE (ALL MODELS)	4.25"	8.50"	9"	2.563 lb.
ADD-ON MODULE	4.25"	4.25"	9"	1.188 lb.
DOOR PHONE	5"	3.88"	1.25"	6.8 oz.

4 ENVIRONMENTAL LIMITS

OPERATING TEMPERATURE	32 - 104 °F/0 - 40 °C
STORAGE TEMPERATURE	-13 - 158 °F/-25 - 70 °C
HUMIDITY	10 - 90 % non-condensing

5 CABLE REQUIREMENTS

EQUIPMENT	CABLE	AWG	MAX FEET	MAX METERS
DIGITAL PHONE	1 PR. TWISTED	24	1300	400
ADD-ON MODULE	1 PR. TWISTED	24	1300	400
SINGLE LINE STATION	1 PR. TWISTED	24	3000	1 KM
DOOR PHONE	2 PR. TWISTED	24	330*	100
WBS24(For future)	2 PR. TWISTED	-	-	600(0.64) 400(0.40)

* This is the maximum distance a door phone can be from the DPIM. The DPIM can be up to 900 cable feet from the KSU. The total distance must not exceed 1230 feet.

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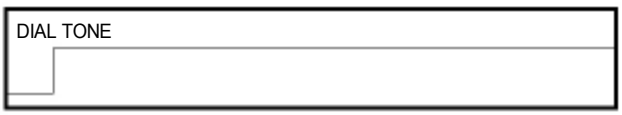
6 SYSTEM TONES

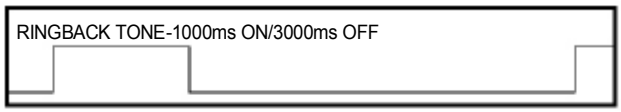
TONE	FREQUENCIES	CADENCE
DIAL TONE	350+440 Hz	CONTINUOUS
RINGBACK TONE	440+480 Hz	1 sec on+3 sec off
DID RINGBACK TONE	440+480 Hz	2 sec on+4 sec off
BUSY TONE	480+620 Hz	0.5 sec on+0.5 sec off
DND/NO MORE CALLS	480+620 Hz	0.25 sec on+0.25 sec off
TRANSFER/CONF	350+440 Hz	0.1 sec on+0.1 sec off
CONFIRMATION TONE	350+440 Hz	0.05 sec on+0.05 sec off
ERROR TONE	480+620 Hz	0.05 sec of tone 1/0.05 sec of tone 2

Intercom Dial Tone-A steady tone that indicates you can begin dialling.



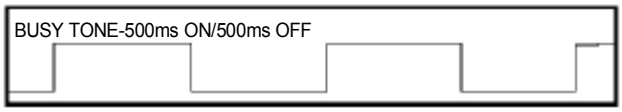
CONTINUS

Ringback Tone-Indicates the station you dialled is ringing.



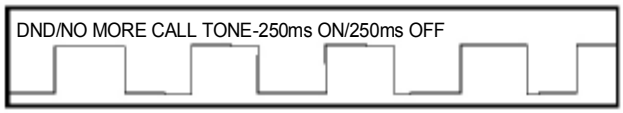
CONTINUS

Busy Signal-Indicates the station you dialled is busy.



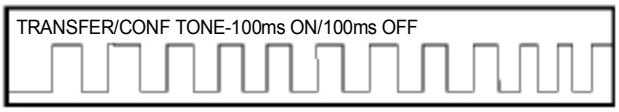
CONTINUS

DND/No More Calls Tone-Fast busy tone advises you the station you dialled is in the Do Not Disturb mode or cannot receive any more calls.



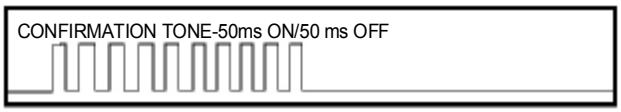
FOR TEN SECONDS

Transfer/Conference Tone-Indicates your call is being held and you can dial another party.



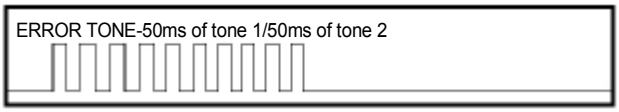
CONTINUS

Confirmation Tone-Very short beeps followed by dial tone indicate you have correctly set or cancelled a system feature.



FOR TWO SECONDS

ERROR TONE-Adistinctive two level beeping tone indicates you have done something incorrectly. Try again.



FOR TWO SECONDS

7 PHONE LED INDICATIONS

CONDITION	LED COLOR	LED ON	LED OFF
LINE IDLE	OFF	–	OFF
LINE IN USE	RED/GREEN	STEADY	–
RECALL	AMBER	500 ms	500 ms
CALL ON HOLD	RED/GREEN	500 ms	500 ms
RINGING Trunk line CALL	GREEN	100 ms	100 ms
RINGING INTERNAL CALL	GREEN	100 ms	100 ms
DND INDICATION	RED	112 IPM for 500 ms	500 ms
OPERATOR CALLS	RED	100 ms	100 ms
ANS/RLS(DND)*	RED	112 IPM for 500 ms	500 ms
ANS/RLS(HDSET MODE)	RED	STEADY	–
TRSF(FORWARD ALL)	RED	STEADY	–

* Overrides headset mode

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8 RESERVE POWER DURATION ESTIMATES (in minutes)*

NO. OF PSUs	UPS CAPACITY IN VOLT AMPS(VA)					
	250	450	600	900	1250	2000
1	5	20	30	47	75	180
2		8	10	24	40	70
3		5	7	20	36	64
4				13	22	35
5				10	13	25
6				5	10	20

* These are approximate values. Specific UPS devices, due to their internal construction, can have greater or lesser values.

NO. OF PSUs	BATTERY CAPACITY IN AH					
	40	80	120	160	200	240
1	20	X	X	X	X	X
2	10	20	X	X	X	X
3	7	13	20	X	X	X
4	5	10	15	20	X	X
5	4	8	12	16	20	X
6	3	7	10	13	16	20

* These are approximate values. Specific UPS devices, due to their internal construction, can have greater or lesser values.

X denotes that this system configuration cannot charge batteries of this capacity.

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CHAPTER 4

Business Feature Package

This chapter describes various features of the OfficeServ 500 system as follows:

- SYSTEM FEATURES
- STATION FEATURES
- DISPLAY FEATURES
- SAMPLE SMDR PRINTOUT(WITHOUT CALLER ID)
- SAMPLE SMDR PRINTOUT(WITH CALLER ID NUMBER)
- SAMPLE UCD REPORT
- UCD CALL STATISTICS
- UCD AGENT STATISTICS
- SAMPLE TRAFFIC REPORT
- TRAFFIC REPORT OVERVIEW
- SAMPLE ALARM REPORT

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1 SYSTEM FEATURES

- Account Code Entry
  - Forced-Verified
  - Forced-Not Verified
  - Voluntary
- Account Code Button(MCP-M)
- Account Code Button-One Touch(Except MCP-M)
- All Call Voice Page
- Attention Tone
- Authorization Codes
  - Forced
  - Voluntary
- Auto Attendant†
- Automatic Hold
- Background Music
- Boss/Secretary Service
  - Executive Answer Mode(MCP2)
  - Executive Status(MCP2)
  - Divert(MCP2)
- Cadence - Integrated Voice Mail*
- Call Activity Display†
- Call Costing†
- Caller Identification†
  - Caller ID
  - Calling Line Identification(CLI)
- Caller ID Features
  - Name/Number Display
  - Next Call
  - Save Caller ID Number
  - Store Caller ID Number
  - Inquire Park/Hold
  - Caller ID Review List(L Version)
  - Caller ID Review List(M Version)
  - Investigate
  - Abandon Call List
  - Caller ID on SMDR
  - Number to Name Translation
- Class of Service
- Common Bell Control
- Conference
  - Add On(5 Party)
  - Unsupervised
  - Split(Except MCP-M Version)
- Computer Telephony Integration(CTI)
  - TAPI 2.1
- Customer Set Relocation
- Call Forwarding
  - All Calls
  - Busy
  - No Answer
  - Busy/No Answer
  - Forward DND
  - Follow Me
  - External(MCP Only)
  - To Voice Mail
  - Preset Destination
  - Call Forward Busy(CFB-MCP Networking Enabled Only)
  - Call Forward No Response(CFNR-MCP Networking Enabled Only)
  - Call Forward Unconditional (CFU-MCP Networking Enabled Only)
- Call Hold
  - Exclusive
  - System
  - Remote
- Call Park and Page
- Call Pickup
  - Directed
  - Groups
  - Established(Except MCP-M Version)
- Call Waiting/Camp-On
- Caller Emergency Service ID(CESID)
- Centrex/PBX Use
- Chain Dialling
- Page All
- Park Orbits
- Primeline Selection
- Private Lines
- Programmable Line Privacy
- Programmable Timers
- Programmed Message Service
- Recalls
- Remote Programming-PC

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- Data Security
- Database Printout
- DECT Service
- Dialled Number Identification Service(DNIS)
- Direct In Lines
- Direct Inward Dialling(DID)
  - Time-based Routing
  - Busy or Camp-On Option
- Direct Inward System Access(DISA)
- Direct Trunk Selection
- Directory Names
- DISA Security
- Distinctive Ringing
- Door Lock Release(Programmable)
- Door phones
- Easyset Interface
- E & M Tie Lines
- Executive Barge-In(Override)
  - With Warning Tone
  - Without Warning Tone
  - Trunk Monitor or Service Observing
- External Music Interfaces
- External Page Interfaces
- Flash Button Operation
- Flexible Numbering
- Hot Line
- Group Conference(MCP2)
- In Group/Out of Group
- Incoming Call Distribution
- Incoming/Outgoing Service
- Individual Line Control
- IP phone Interface(MCP2)
- ISDN Service
  - Primary Rate Interface(PRI)
  - Basic Rate Interface(BRI)
- Large LCD phone Interface(MCP2)
- Least Cost Routing
- Live System Programming
  - From any Display phone
  - With a Personal Computer
- Meet Me Page and Answer
- Memory Protection
- Message Waiting Indications
- Microphone On/Off per Station
- Music on Hold-Flexible
- Music on Hold-Sources
- Networking(PRI/Q-SIG)
- Ring Modes
  - Time Based Routing
  - Automatic/Manual
  - Holiday Schedule
  - Temporary Override
- Ring Over Page
- Secretary Pooling
- Single Line Connections
- Speed Dial Numbers
  - Station List(50 Max)
  - System List(500 Max)
- Speed Dial by Directory
- Spot View Interface
  - Spot Call Plus
  - Spot News
  - Spot Choice
- Station Hunt Groups
  - Distributed
  - Sequential
  - Unconditional
- Station Message Detail Recording(SMDR)
- System Alarms
- System Maintenance Alarms
- System Directory
- Tenant Services
- Text Message Service
- Toll Restriction
  - Time of Day
  - By Line or Station
  - Eight Dialling Classes
  - Special Code Table
- Toll Restriction Override
- Tone or Pulse Dialling
- Traffic Reporting
- Transfer
  - Screened/Unscreened
  - Voice Mail Transfer Button
  - With Camp-On
- Trunk Groups
- Uniform Call Distribution(UCD)†
  - UCD Groups
  - Call Statistics
  - Agent Statistics
  - Group Supervisors
  - Printed Reports
- Universal Answer
- Virtual Port

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Off Premises Extensions(OPX)
Operator Group
Overflow
- Operator
- Station Group

Override Code
Paging
- Internal Zones(4)
- External Zones(4)
- All Internal
- All External

Voice Dialling
Voice Mail-Inband Integration
VoIP Networking(MCP2)
VoIP Trunk Interface(H.323/SIP)
Walking Class of Service
Wireless LAN Service(MCP2)

* Requires optional hardware and/or software. Ask your dealer for details.

1.1 System Feature Descriptions

1.1.1 Account Code Entry

Station users may enter an account code(maximum 12 digits) before hanging up from a call. This account code will appear in the SMDR printout for that call record. Phone users may enter this code using an account code button without interrupting a conversation. Single line telephone users must temporarily interrupt the call by hook-flashing and dialling the feature access code. Manually entered account codes can be up to 12 digits long. In some cases users can be forced to enter an account code and this account code may or may not be verified as described below.

Forced-Verified

When set for this option you must enter an account code for all outgoing calls.
The account code entered will be verified from a system list of 500 entries for MCP-M and from a list of 999 entries for MCP2 and MCP-L version software. Forced Verified codes can contain the digits 0~9.

Forced-Not Verified

When set for this option you must enter an account code for all outgoing calls, but the account code is not verified against the system list. Non verified account codes can contain the digits 0~9 and #.

Voluntary

In this case account codes are not required to make outgoing calls but may be used if desired. This is also the method used to assign an account code to incoming calls. These account codes can contain the digits 0~9 and #.

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1.1.2 Account Code Button (MCP-M Version)

The account code(ACCT) button can be programmed on any phone and will appear as a soft button on display phones. This button allows you to enter account codes without interrupting a call.

1.1.3 Account Code Button-One Touch (Except MCP-M Version)

The account code(ACC) button can be programmed on any phone. This button can be programmed with an extender and operates in three different ways depending on the extender as follows:

Extender = 000 When programmed with an extender of 000 the ACC button will operate in the same manner as the ACCT button in the MCP-M version. That is to say you will be prompted to enter an account code when the button is pressed.

Extender = 001~999 When programmed with an extender ranging from 001 to 999 the button will, when pressed, automatically insert the account code contained in that bin of the system account code list. This is known as One Touch account codes. This option can be denied in system programming to prevent you from bypassing the security of system account codes.

No Extender When programmed without an extender the button will, when pressed, prompt you to enter the bin number the system account code table where the account codes are stored.

1.1.4 All Call Voice Page

You can page all internal and all external paging zones at the same time by dialling the All Page code. Phones may be restricted from making or receiving pages in system programming. A maximum of 99 phones can be programmed in each internal page zone to receive page announcements.

1.1.5 Attention Tone

To get your attention, a brief tone precedes all page announcements and intercom voice calls.
There are separate programmable duration timers for page and voice announce tones.

1.1.6 Authorization Codes

Authorization codes are used to give permission to make a call. A maximum of 250 four digit authorization codes can be either forced or voluntary for MCP-M and 500 four to ten-digit authorization codes can be either forced or voluntary for MCP2 and MCP-L version software. When used, authorization codes will automatically change the dialling station's class of service to the level assigned to the authorization code. Authorization codes may be programmed to print or not print on SMDR.

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FORCED

When a station is programmed for forced authorization, you must always enter this code before dialling is allowed. The dialled authorization code is verified from the system list of 250 authorization codes on an MCP-M system or 500 on an MCP2 and MCP-L system.

VOLUNTARY

Any station user can always enter an authorization code before they begin dialling. The dialled authorization code is verified from a system list of 250 authorization codes for MCP-M version software or 500 for MCP2 and MCP-L version software.

1.1.7 Auto Attendant

The integrated digital automated attendant feature(AA) provides eight ports per card for simultaneous answering and call processing. A maximum of five cards can be installed in one system. Each sixteen professionally recorded announcements inform callers of the progress of their calls. Several examples are the following : 'I'm sorry. There is no answer', 'That station is busy', and 'Invalid Number. Please try again'. A maximum of four minutes of super capacitor backed(100 hours) random access memory(RAM) provide up to 48 customer recordings for announcements or greetings. Twelve individual announcements(boxes), each with its own dialling options, allow you to build call routing branches as needed. Callers are routed through the branches by dialling extension numbers or single digits. This system is compatible with Cadence.

Announcements recorded on one AA card cannot be played to callers on another AA card.

1.1.8 Automatic Hold

While a phone user is engaged on an outside(Trunk line) call, pressing another trunk button, route button or CALL button automatically places the call on hold when Automatic Hold is enabled. Pressing TRSF, CONFERENCE, PAGE or a DSS button always automatically places a Trunk line call on hold. Intercom calls can be automatically held only by pressing TRSF or CONFERENCE. Each phone user can enable or disable Automatic Hold.

1.1.9 Background Music

Phone users may choose to hear music through their phone speakers when optional external sources are installed. Each user may adjust this level by the use of a volume control program at the selected phone.

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1.1.10 Boss/Secretary Service

Up to four secretaries can be assigned to an executive. The line designated as the executive may not be assigned as a secretary of another executive. When the executive is busy or in DND status, the call is automatically connected to the secretary.

Executive Answer Mode

In MCP2, the secretary can set the response mode for each executive. In MCP, the secretary can set the response mode for each Tenant. The response modes include Ring Mode, Automatic Answer, and Voice Announce.

Executive Status (MCP2)

The status of an executive can be set by the executive or the secretary. Other persons can verify the set status through Easyset Application.

Divert (MCP2)

Divert may only be set from the line designated as an executive. Press the [Divert] button in idle mode to automatically transfer all incoming calls to the secretary. Press the [Divert] button while ringing to transfer the incoming call to the secretary. The Divert function is operated by a toggle button.

1.1.11 Call Activity Display

The OfficeServ 500 will record and buffer all calling activity within the system. With a Call Activity Display(CAD) button, the OfficeServ 500 will display a ‘snapshot’ of the following information :

- The maximum number of ports that have been used
- The maximum number of trunks that have been used
- The maximum number of stations that have been used
- The current number of ports in use
- The current number of trunks in use
- The current number of stations in use

This feature is only available on MCP2 card and MCP card with a LAN module.

1.1.12 Call Costing

The OfficeServ 500 provides programmable call costing tables to calculate the cost of incoming and outgoing calls. Rates are calculated by the number dialled, and may include surcharges. Display phones can be set to show the call duration timer or the call cost.
The SMDR report will show either the call duration or the call cost depending on the station selection. One call handled by multiple callers will cost each call segment separately.

1.1.13 Caller Identification

The OfficeServ 500 supports three methods of identifying an incoming caller depending on the circuit type as described below.

Caller ID

On an analog, loop start CO line, calling party information is called Caller ID and is available from the telephone company in two formats, Number only and Name and Number, sometimes called Deluxe. The OfficeServ 500 is compatible with both formats. Even if the telephone company only offers the number only, a name can be attached to the telephone number of frequent callers via the CID translation table.

Calling Line Identification (CLI)

On ISDN circuits, calling party information is called CLI and is supported on both BRI and PRI type circuits as described below.

On ISDN circuits the OfficeServ 500 only supports Number delivery and a name can be attached to the telephone number of frequent callers via the CID translation table.

Caller ID Features

The following features apply to all forms of Caller Identification, however, to make them easier to read caller identification is referred to as Caller ID.

Name/Number Display

Each LCD phone user can decide if he/she wants to see the name or number in the display. Regardless of which one is selected to be seen first, the NND button is pressed to view the other pieces of information.

Next Call

In the event that you have a call waiting or a camped-on call at your phone, you can press the NEXT button to display the Caller ID information associated with this next call in queue at your station.

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Either the Caller ID name or number will show in the display depending on your selection.

Save Caller ID Number

At any time during an incoming call that provides Caller ID information, you may press the SAVE button. This saves the Caller ID number in the Save Number feature. Pressing the SAVE number redial button will dial the Caller ID number. The system must be using Least Cost Routing(LCR) to dial the saved number.

Store Caller ID Number

At any time during an incoming call that provides Caller ID information, you may press the STORE button. This saves the Caller ID number as a speed dial number in your personal speed dial list.
The system must be using LCR to dial the stored number.

Inquire Park/Hold

Having been informed that an incoming call is on hold or has been parked, you may view the Caller ID information before you retrieve the call. This will influence how you choose to handle the call.

Caller ID Review List (MCP-M Version)

This feature allows display phone users to review Caller ID information for calls sent to their stations. This list can be from ten to fifty calls in a first in, first out basis. The list includes calls that you answered and calls that rang your station but that you did not answer. When reviewing this list, you can press one button to dial the person back. The system must be using LCR to dial the stored number.

Caller ID Review List (Except MCP-M Version)

The operation of this feature on an MCP2 and MCP-L version system is similar to the MCP-M version described above, however there is an added option called CID REVW ALL in the User ON/OFF options. When set to ON the feature will operate the same as described above. However, when set to OFF only calls that are not answered(missed calls) at the station will be recorded in the Review list.

Investigate

This feature allows selected stations with a special class of service to investigate any call in progress. If Caller ID information is available for an incoming call, you will know to whom this station user is speaking. On outgoing calls, you can see who was called. After investigating, you may barge-in on the conversation, disconnect the call or hang up.

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Abandon Call List

The system has a system-wide abandon call list that stores Caller ID information for calls that rang but were not answered. The list is accessed using the administrator's passcode. When reviewing this list, you are provided options to CLEAR the entry or DIAL the number. You can see the NND button to toggle between the Caller ID name, number and the date and time the call came in. The system must be using LCR to dial numbers from the abandon call list. The abandoned call list will store up to 100 unanswered calls.

Caller ID on SMDR

The Station Message Detail Records report can be set to include Caller ID name and Caller ID number for incoming calls. This format expands the printout to 113 characters. Use a wide carriage printer or an 80 column printer set for condensed print.

Number to Name Translation

The system provides a translation table for 400 entries on MCP-M, 1500 entries on MCP-L, 1000 entries on MCP2-M and 2000 entries on MCP2-L version software. When the Caller ID number is received, the table is searched. When a match is found, the system will display the corresponding name.

1.1.14 Call Forwarding

This feature allows you to redirect(forward) incoming calls. The calls can be redirected to the attendant, a hunt group, voice mail, external number or another station user. If the destination station is in Do Not Disturb(DND), the calling party will receive DND/Reorder tone. Calls cannot be forwarded to a door phone. In MCP2 version, the external number can be set to the forward destination for all kinds of forwarding. So External, CFB, CFNR and CFU option is removed. When the destination is external number, the ICM EXT FWD option must be set to ON. If not, the call forwarding does not accomplished.

ALL CALLS

This type of forwarding is not affected by the condition of the station. All calls are immediately redirected to the designated destination. If desired, the destination station may redirect the call back to the forwarded station by using the transfer feature. The forwarded station user can continue to originate calls as usual. If no button is programmed as Forward All, the TRSF button lights steady when a Forward All condition is set.

BUSY

This feature forwards all calls only when the station set is busy. The station user can originate calls as usual.

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NO ANSWER

This feature forwards calls that are not answered within a preprogrammed time. You can originate calls as usual and receive call if present. The timer is programmable on a per-station basis to allow for differences in individual work habits.

BUSY/NO ANSWER

This feature allows the station user to use both types of forwarding simultaneously, provided the destinations have already been entered in the usual manner.

FORWARD DND

This feature works with the Do Not Disturb feature. This allows calls directed to a station in Do Not Disturb or One Time Do Not Disturb to forward immediately to another destination.

FOLLOW ME

This feature allows you to forward all calls from another station to your station or change the forward destination to your current location.

EXTERNAL (MCP Only)

This feature forwards Trunk line calls to an external number via a central office trunk if allowed by class of service. Intercom calls may also be programmed to forward to an external number via a central office trunk. These calls will forward only after the programmable external call forward delay timer expires.

TO VOICE MAIL

Each station may be programmed to allow or deny the ability to forward intercom calls to voice mail. When denied, valuable message time in the voice mail system can be saved.

PRESET DESTINATION

If desired this feature provides for a permanent(preset) forward no answer destination for each extension. It can only be programmed by the system technician or system administrator. When any station does not have FWD/NO-ANSWER set, the call will ring this preset destination if one is programmed.

Call Forward Busy (CFB) (MCP-networking enabled only)

This is a different feature from the normal call forward busy and is only used when the forward destination is in a different node of the network. The operation of the feature is the same as the normal forward busy where when the forwarded station is busy a calling station will be forwarded to the forward destination.

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Call Forward No Response (CFNR) (MCP-networking enabled only)

This is a different feature from the normal call forward no answer and is only used when the forward destination is in a different node of the network. The operation of the feature is the same as the normal forward no answer where when the forwarded station does not answer after a programmed amount of time a calling station will be forwarded to the forward destination.

Call Forward Unconditional (CFU) (MCP-networking enabled only)

This is a different feature from the normal call forward all and is only used when the forward destination is in a different node of the network. The operation of the feature is the same as the normal forward all where all calls to the forwarded station will be forwarded to the forward destination.

1.1.15 Call Hold (Exclusive)

Outside calls can be placed on exclusive hold at any phone by pressing HOLD twice during a call. Calls placed on exclusive hold can only be retrieved at the phone that placed the call on hold. Intercom calls are always placed on exclusive hold.

1.1.16 Call Hold (System)

Outside calls can be placed on system hold at any station. You may dial the access code or press the HOLD button. Calls on system hold may be retrieved at any station.

1.1.17 Call Hold (Remote)

Outside calls can be placed on hold at a remote station. This feature allows calls to be answered at one phone and placed on hold at another station. This allows time for you to proceed to that station or allows the party that the call was intended for to have that call placed at their station. The call or trunk button will flash at the remote hold station.

Intercom calls cannot be remote held.

1.1.18 Call Park and Page

Each Trunk line has its own park zone. This simple method eliminates confusion and ensures that a park zone is always available. Pressing the PAGE button parks the call automatically. There are no extra buttons to press and there is no lost time looking for a free zone.

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1.1.19 Call Pickup

DIRECTED

With directed call pickup, you can answer calls ringing at any station by dialling a code plus that station's extension number or by pressing the feature button and then dialling the extension.

GROUPS

In addition, calls can be picked up from a station group in a similar manner.
The group pickup feature allows you to answer any call ringing within any pickup group. There are 99 pickup groups available. A station cannot be in more than one pickup group. To use this feature, station users either dial the access code or press the assigned feature button followed by the pickup group number.

ESTABLISHED (Except MCP-M version software only)

This feature enables a phone user to pick-up an establish call in progress at a single line extension connected to a modem on a PC. An EP button with this extension number must be programmed on the phone. Established call pickup is useful with PC dialling programs that out-dial from a large list of telephone numbers. Let the computer dial for you, then press the EP button to speak with the called party.

1.1.20 Call Waiting/Camp-on

Busy stations are notified that a call is waiting(camped-on) when they receive a tone. The tone is repeated at a programmable interval. Phones receive an off-hook ring signal through the speaker and single line stations receive a tone in the handset. The volume of the camp-on tone can be set by the station user. Camped-on calls follow Forward No Answer if a Forward No Answer destination has been set.

Optionally any station can be programmed to automatically camp-on to a busy station instead of having to press the camp-on button or dial a camp-on code.

1.1.21 CENTREX/PBX Use

CENTREX and PBX lines can be installed in lieu of central office trunks. CENTREX and PBX feature access codes including the command for hook-flash (FLASH) can be stored under one touch buttons. Toll restriction programming can ignore PBX or CENTREX access codes so that toll calls can be controlled when using these services.

1.1.22 Chain Dialling

Phone users may manually dial additional digits following a speed dial call or chain together as many speed dial numbers as are required.

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1.1.23 Class of Service

The system allows a maximum of 30 station classes of service. Each class of service can be customized in memory to allow or deny access to features and to define a station's dialling class. Each station can be assigned different classes of service for day and night operation.

1.1.24 Common Bell Control

The MISC daughter board provides relays that may be programmed to control a customer-provided common bell or common audible device. These contacts must be programmed as members of a station group and may provide steady or interrupted closure.

1.1.25 Conference

The system allows six simultaneous conferences up to 5 parties each. If a SCM daughter board is installed, then the system allows a total of 24 simultaneous conferences up to 5 parties each.

ADD-ON (5 PARTY)

Any combination of up to five parties(stations or outside lines) can be joined together in an add-on conference. Parties may be eliminated or added after a conference has been established.

UNSUPERVISE

A station user may set up a conference with two or more outside lines and then exit the conference leaving the outside lines connected in an unsupervised(trunk to trunk) conference.

SPLIT (Except MCP-M version software only)

A phone user can 'split' a conference into separate outside calls, then speak with each caller privately. Then the individual calls can be conferenced again in any combination.

This feature requires individual trunk buttons and auto-hold must be enabled.

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1.1.26 Computer Telephony Integration (CTI)

Computer Telephone Integration(CTI) allows integration between the OfficeServ 500 and a personal computer system(PC) or a local area network(LAN). Caller ID service is required for TAPI inbound call applications that use the CID information to display computer records in conjunction with the presentation of the call to the station on the OfficeServ 500.

TAPI 2.1

TAPI 2.1 is the method of integrating the DCS 500 system to a computer. TAPI 2.1 is a LAN based solution allowing computers to communicate directly to the telephone system over the network system. This establishes a logical connection rather than a physical connection between telephone and computer. It eliminates the cost and administrative overhead of connecting every PC to a desktop phone. It emphasizes third-party call control.

E.g.,) Calls can be tracked as they are transferred, making it more suited to large office applications.

TAPI 2.1 can emulate first-party type call control for the OfficeServ 500 system, rather than from the telephone as TAPI 2.0 does. For example, to make a call the OfficeServ 500, rather than the telephone would dial the phone number, and the call would be then transferred to the telephone.

1.1.27 Customer Set Relocation

Customer Set Relocation allows the customer to exchange or swap similar stations in the OfficeServ 500 without wiring changes. All individual station assignments such as trunk ring, station group, station COS, station speed dial, button appearances, call forwarding, etc. will follow the Customer Set Relocation program.

1.1.28 Data Security

Single line extensions used with modems and facsimile machines can be programmed so that they will not receive any system-generated tones that would disrupt data transmissions. In addition, these devices receive DCS Trunk line ringing pattern instead of intercom ring pattern. Devices connected to an SLI card receive a disconnect signal upon termination.

1.1.29 Database Printout

A copy of the customer database can be obtained by using PCMMC.
This information can be directed to a printer or the PC screen and may be done either on-site or remotely. A complete database or specific data blocks may be obtained.

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1.1.30 DECT Service

OfficeServ 500 system provides DECT cordless communications in a single office or throughout a large commercial or industrial complex. To implement this service, you need 8BSI card, DBS card and DECT handsets. Users of this service meet improved overall efficiency, since staff can be reached or make calls wherever they are. OfficeServ 500-M system support only an 8BSI card and OfficeServ 500-L system support maximum three 8BSI card. In case of OfficeServ 500-L, the 8BSI cards must be installed in same cabinet.

1.1.31 Dialled Number Identification Service (DNIS)

When DNIS service is provided on an incoming trunk the OfficeServ 500 can route calls based on the numbers received.

1.1.32 Direct in Lines

Outside lines may be programmed to bypass the operator(s) and ring directly at any station or group of stations.

1.1.33 Direct Inward Dialling (DID)

The term Direct Inward Dialling or DID refers to four types of digit steered inbound call handling. These are DID, Both Way DID, Dialled Number Identification service(DNIS and Direct Dial In(DDI). The OfficeServ 500 supports all four types as described below.

DID is an inbound only service where multiple telephone numbers are assigned, usually in blocks of twenty, to a single circuit or small group of circuits.
These circuits can be single pair analog circuits that will terminate on a DID card. The OfficeServ 500 DID card supports up to four circuits. In addition the DID circuit can be a channel on a digital E1 service terminating on a TEPRI card.

Both way DID is a service that combines DID service with normal outbound local telephone service. This service is provided over E & M tie line circuits. These E & M tie line circuits can terminate on either the E&M card or on a channel of a digital E1 circuit on a TEPRI card.

Dialled Number Identification Service(DNIS) is a feature of 800 or 900 type numbers that allows the number dialled by the caller to be identified in the telephone system by means of a sequence of DTMF digits(usually four). This service terminates on E&M tie lines. These E & M tie line circuits can terminate on either the E & M card or on a channel of a digital E1 circuit on a TEPRI card.

Direct Dial In(DDI). This is the name given to the above three services when they are provided over an ISDN PRI circuit.

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1.1.34 Direct Inward System Access (DISA)

You can call in on specific DISA lines at any time, input a security code and receive system dial tone. You can now place internal calls or if permitted, calls using Trunk lines. The caller must have a tone dial phone and know his/her DISA security code. DISA lines can be used as both way lines or incoming only and may be active in day mode, night mode or both. The Trunk lines used for DISA must have disconnect supervision. The requirement to put in a DISA security code can be disabled if desired.

1.1.35 Direct Trunk Selection

Each station can be allowed access to or denied access from a trunk or trunk group by access code when LCR is activated. When restricted, the station user must use a trunk button or a route button.

1.1.36 Directory Names

Each station, station group and Trunk line may be assigned a directory name (maximum 11 characters). In addition, each personal speed dial number, system speed dial number and entry in the DID translation table may be assigned a name (maximum 11 characters). These names are displayed during calls with these ports and in the case of station and speed dial names, can be used to originate calls. See the Dial by Name feature(Station Features).

1.1.37 DISA Security

Telephone fraud and long distance theft are a serious concern. The OfficeServ 500 provides a strong DISA security system. If an incorrect DISA passcode is entered repeatedly(as is the case with ‘hackers’), the DISA system can be automatically disabled temporarily. Both the number of incorrect passcode attempts and the time that DISA is disabled are programmable. In addition, all failed attempts to access DISA print on SMDR(if provided) with a ‘DE’ DISA error flag.

1.1.38 Distinctive Ringing

You know the type of call received by the type of ring heard. Outside calls have a single ring repeated while internal calls have a double ring repeated.

In addition any trunk or station can be programmed to ring a phone with a predefined ring tone(1-8) or a single line port with a predefined cadence(1-5) selection.
This provides for easy identification of special lines or extensions that ring your phone.

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1.1.39 Door Lock Release (Programmable)

After answering a call from the door phone, you can dial a code to activate a contact closure.
This can be used to operate a customer-provided electric door lock release mechanism. The contact closure timer is programmable from 100-2500 ms.

1.1.40 Door phones

The door phone interface module(DPIM) provides for connection of a door phone to a DLI port. Pressing the button on the door phone produces a distinctive ring(three short rings repeated) at the assigned station or station group. If not answered within a programmable time, the system releases the door phone and stops the ringing. Stations may call the door phone directly and monitor the surrounding areas. Door phones follow the system ring mode plan.

1.1.41 Easyset Interface

Easyset Interface supports the interlocking of Easyset Application.
Easyset Application is used for easily setting the buttons and functions of the digital/IP phone through the PC. Various convenient features such as the Short Message Service(SMS) and diary are added to the Easyset Application.

1.1.42 E & M Tie Lines

Your office can be connected to another office with a tie line. Use it to make calls to stations in the other system. If programming allows, you can access lines in the other system to make outside calls. Tie line calls can be put on hold, transferred and conferenced in the same way as are other outside calls. You accessing the tie line from the other system can get a line in your system and make outgoing calls. These calls can be controlled by assigning a dialling class to the tie line. Your local telephone company may use E & M tie lines to provide DID service. In this case these tie lines can be programmed to follow the DID translation table. See DID. Translated E & M tie line calls have Time-based routing capabilities.

1.1.43 Executive Barge-in (Override)

The feature allows specially programmed stations with a barge-in button to override the automatic privacy of another station or outside trunk. Programming allows barge-in with or without a warning tone. Stations may also be programmed as ‘secure’ so that they cannot be barged-in on.

WITH WARNING TONE

When the barge-in with tone option is set, the barging-in phone has its microphone on and the barged-in on station receives an override display. A double burst of warning tone sounds and repeats every ten seconds. This feature does not work from single line sets.

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WITHOUT WARNING TONE

When the barge-in without tone option is set, the barging-in phone has its microphone muted and the barged-in on station does not receive an override display. This feature does not work from single line sets.

TRUNK MONITOR or SERVICE OBSERVING

This feature allows the user who barged-in to retain the trunk call after the original station has hung up.

Barge-In without tone may violate laws concerning the right to privacy. SAMSUNG Electronics co. is in no way responsible for the possible misuse of this feature.

1.1.44 Executive/Secretary Pooling

Each phone may be defined as an executive(BOSS in programming) or a secretary(SECR in programming) in system programming. Each executive can have up to four secretaries and each secretary can have up to four executives.
These arrangements are known as executive/secretary pools. There can be multiple pools in a system. When an executive is in DND, all calls to the executive ring the first secretary assigned to that executive; if that secretary is busy, the call hunt to the next available secretary assigned to that executive. If the secretary must communicate with the executive while he/she is in DND, pressing the corresponding executive button on the secretary's phone results in an Auto Answer intercom call being made to the executive(providing the executive is free). The OfficeServ 500 software has a system wide option to allow the stations to ring rather than auto announce the executive secretary calls. A station can only be the executive of one secretary pool. In addition, a station cannot be in more than one pool.

1.1.45 External Music Interfaces

The MISC card provides two inputs for connecting to customer provided external music sources. Each cabinet of the OfficeServ 500 can support one MISC card for a total of three cards or six sources in a maximum sized system. These sources can be used to provide background music, or any of the varied Music On Hold(MOH) uses.

1.1.46 External Page Interfaces

The OfficeServ 500 main control card(MCP) with a MISC module installed provides one external page output and three zone control relays. Resources from added miscellaneous applications modules(MISC) can be combined to provide four external zones. Multiple relays may be assigned to each zone.

1.1.47 Flash Button Operation

While you are on an outside line, pressing the FLASH button will flash the central office or PBX. This is used for custom calling features on Trunk lines or in conjunction with CENTREX/PBX operation. System programming allows individual flash times for Trunk line and PBX lines. When Trunk line or PBX flash is not required, setting the timers for two seconds releases the existing call and returns dial tone to make a new call.

1.1.48 Flexible Numbering

System programming allows stations to have two, three or four digit extension numbers beginning with the digit 2 or 3. Three digit default extension numbers begin with 201 and four digit defaults begin with 2001. Station group numbers can be three or four digits beginning with the digit 5.

Using digits other than 2, 3 or 5 will require the technician to change other feature access codes in the system default numbering plan. User guides will need to be modified as these are all written using the OfficeServ 500 default numbering plan.

1.1.49 Hot Line

Stations can be programmed to call a pre-defined station or station group whenever that station goes off-hook. A hot line delay timer of 0-250 seconds can be programmed to allow sufficient time to make a different call.

1.1.50 Group Conference (MCP2)

The GCONF button is used to automatically call the preset number and include the person into the conference when he or she answers the call. This function may only be used for preset extensions, and up to five conference groups can be assigned to an extension. Up to five persons, including you may be assigned to a conference group. The Trunk line, which can identify if the other party answers the call, shall be used to ensure normal service when calling external numbers.

1.1.51 In Group/Out of Group

Individuals assigned to a station hunt group may temporarily remove their telephones from the group by pressing the In/Out of Group button providing that there is someone still in the group. The OfficeServ 500 has a system wide option to allow all members to log out of a station group. Stations out of a group will not receive calls to that group but will continue to receive calls to their individual extension numbers. When desired, you may put him/herself back into the group by pressing the button again. Users who do not have this button may dial the access code and the group desired. A station user is allowed to be in several groups, providing a button and the extender of that group are assigned for each group on the user's phone.

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1.1.52 Incoming Call Distribution

Incoming calls can be assigned to ring a distributed station hunt group. This allows all members of the group to share the call load.

1.1.53 Incoming/Outgoing Service

Outside lines are available for incoming or outgoing service. Programming allows any outside line to be used for incoming calls only, outgoing calls only or both way service.

1.1.54 Individual Line Control

Each station in the system can be individually programmed to allow or deny dialling out as well as allow or deny answering for each outside line.

1.1.55 IP phone Interface (MCP2)

In MCP2 version, the IP phone Interface supports IP phone interlocking.
An additional Media Gateway Interface(MGI) port is not required for calls between Local IP phones, but a separate MGI card must be installed for calling an existing station. There are three types of MGI cards, MGI1, MGI2 and MGI3. Up to five cards can be mounted per cabinet. Up to 2 cards can be mounted per cabinet for the MGI3 card. The MGI1 card only supports the G.711 CODEC, and the MGI3 card is required for Internet FAX.

1.1.56 ISDN Service

Primary Rate Interface (PRI)

The OfficeServ 500 supports Primary Rate Interface ISDN. PRI allows simultaneous data calls, calling party and calling line identification, high speed call setup and disconnect are among the benefits of ISDN calling. The 30+D configuration of ISDN allows call information to be delivered via the data channel(the ‘D’ of 30B+D) thus leaving the bearer channels(the ‘B’ of 30B+D) available for single use or combined use to provide a wider bandwidth for data and video.

Basic Rate Interface (BRI)

The BRI card supports trunk or station level Basic Rate Interface services(BRI). Trunk or station BRI use is software programmable. BRI allows simultaneous data calls, called party and calling number identification, high speed call setup and disconnect are among the benefits of ISDN calling. The 2B+D configuration of ISDN allows call information to be delivered via the data channel(the ‘D’ of 2B+D) thus leaving the bearer channels(the ‘B’ of 2B+D) available for single use or combined use to provide a wider bandwidth for data and video.

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1.1.57 Large LCD phone Interface (MCP2)

In MCP2 version, the Large LCD phone Interface supports the Large LCD phone. The wide LCD screen of the Large LCD phone provides various features such as Virtual AOM, phone Book, LCD Navigation similar to that of a mobile phone, and Enblock Dialling.

1.1.58 Least Cost Routing

Least Cost Routing(LCR) is the ability to automatically select the most cost effective central office route for the outside number dialled by any station. The OfficeServ 500 LCR program includes the following features :

- Option to use or not use LCR or a tenant basis
- Programmable LCR access code
- Digit analysis table 1000 entries each with ten digits for an MCP-M and 2000 entries each with ten digits for an MCP2 and MCP-L system.
- Routing by time of day and day of week(4 time bands per day)
- Routing according to individual station class
- Modify digits table 100 entries for an MCP-M and 200 entries for an MCP2 and MCP-L system
- Flexible trunk group advance timer
- Option to use or not use trunk group advance warning tones

1.1.59 Live System Programming

The system can be programmed from any display phone or personal computer without interrupting normal system operation. There are three levels of programming : technician, customer and station. The technician level has access to all programs and can allow the customer access to system programs as needed. Technician and customer access are controlled by different security passcodes. Programming from a PC requires the PCMMC program.

1.1.60 Meet Me Page and Answer

After you make a Meet Me Page, you may remain off-hook to allow the paged party to meet you for a private conversation.

1.1.61 Memory Protection

In the event that power is lost to the system, all customer data contained in memory is retained by the use of a ‘super capacitor’ for approximately 7 days. In addition, the PCMMC computer program may be used to produce a backup copy of the customer data. Additionally, the Smart Media card may be used to store the system database.

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1.1.62 Message Waiting Indications

When calling a station and receiving a busy signal or the no answer condition, the caller can leave an indication that a message is waiting. The message button will flash red at the messaged phone.
A single line phone will receive a distinctive message waiting dial tone. Five message waiting indications can be left at any station.

1.1.63 Microphone on/Off Per Station

The microphone can be disabled at any phone. When the microphone is disabled, the phone cannot use the speakerphone, although on-hook dialling and group listening are still possible.

1.1.64 Music on Hold-Flexible

The OfficeServ 500 allows its music sources to be used in a very flexible manner as follows :

Each phone can have a designated music source for playing as Background Music(BGM) through the phone speaker.

Each Station can have a designated music source for playing to callers placed on Exclusive hold at that station.

Each Trunk can have a designated music source for playing to callers placed on hold. This setting is overridden by some of the other settings such as station music on hold, DID MOH and UCD MOH.

Each UCD group can have a designated music source to be played while a caller is in queue.

On an MCP2 and MCP-L version system each entry in the DID translation table can have a designated music source to be played when a caller to that DID number is placed on hold.

1.1.65 Music on Hold-Sources

The OfficeServ 500 provides for up to six different types of Music on Hold source including silence or ‘NONE’ as listed below :

None : No audio is played to the listener

Tone : A tone or ‘beep’ is repeated at a programmable interval

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Chime : A music chime source(Old Folks At Home) located on the MCP card is played to the listener.

External source : An external source connected to a MISC card, such as a digital announcer or radio, is played to the listener.

Digital Announcement on AA card : If the system is equipped with an AA card the last port of this card can be flagged as a MOH source and used to repeatedly play a message recorded on the AA card to the listener.

Voicemail Sound File : If the OfficeServ 500 system has an optional CADENCE card installed, up to 100 custom recorded sound files from the Voice Mail card can be used for MOH sources.
For information on creating the sound files see CADENCE System Administrator Manual-Recording greeting by number. If you select this option be advised that each VMMOH source requires a dedicated CADENCE port/channel.

1.1.66 Networking (PRI/Q-SIG)

The OfficeServ 500 networking feature allows up to 4 OfficeServ 500 systems to be connected together with some basic feature transparency. The physical connection between the systems is via a proprietary PRI connection and is based on the Q-SIG specification. The following features are supported between two networked systems.

Call Completion, Busy Station(CCBS). Also known as Callback or Busy Station Callback. When a station in one system calls a station in another system across the network link and the destination station is busy the calling station can set a Callback to the busy station. When the busy station becomes idle the system will notify the callback originating station by ringing that station and when the originating station answers, the system will call the destination station.

Call Completion, No Response(CCNR). Also known as Callback or No Answer Callback. When a station in one system calls a station in another system across the network link and the destination station does not answer the calling station can set a Callback to the called station. When that station indicates you are present by becoming busy then idle the system will notify the callback originating station by ringing that station and when the originating station answers, the system will call the destination station.

Call Forward Busy(CFB). This is a different feature from the normal call forward busy and is only used when the forward destination is in a different node of the network. The operation of the feature is the same as the normal forward busy where when the forwarded station is busy a calling station will be forwarded to the forward destination.

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Call Forward No Response(CFNR). This is a different feature from the normal call forward no answer and is only used when the forward destination is in a different node of the network.
The operation of the feature is the same as the normal forward no answer where when the forwarded station does not answer after a programmed amount of time a calling station will be forwarded to the forward destination.

Call Forward Unconditional(CFU). This is a different feature from the normal call forward all and is only used when the forward destination is in a different node of the network. The operation of the feature is the same as the normal forward all where all calls to the forwarded station will be forwarded to the forward destination.

Forward External. This feature operates in the same manner as a non networked system with the exception that, because calls across a network link are trunk calls, network calls do not follow the ICM FWD EXT ON/OFF setting in MMC 210.
It is therefore suggested that this setting be set to ON in a networked switch to avoid confusion in operation between networked and non networked calls.

Call Intrusion(Barge In). This feature operates in the same manner as in a non networked switch.

Call Offer/Call Waiting(Camp On). This feature operates in the same manner as in a non networked switch. When a called station is busy the caller can press a camp on button and appear as a ringing call on the second call button. The Auto camp on feature will not work on calls across a network link if set to ON in MMC 110.

Call Transfer. Calls answered in one network node can be transferred to a station or station group in another network node.

Transfer Retrieve. Calls on Transfer Hold during a screened transfer can be retrieved by pressing the call button for that call.

Transfer Recall. Calls transferred across a network link will recall to the transferring station after the originating systems transfer recall timer expires. After recalling, if not answered prior to that systems attendant recall timer expiring, the call will recall to that systems designated operator group. Attendant recalls will not recall to a 'Centralized Attendant'.

DID with Pass Through. Incoming DID, DNIS or DDI calls can be routed through one switch across a network link to be processed by the DID table of the destination switch.

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Do Not Disturb(DND). This feature operates in the same manner as in a non networked switch. There is an option in MMC 823 to determine the type of DND tone sent across the network link.

Caller ID. Caller ID in its various forms that are currently available(Analog CID Name and Number, ANI Number, PRI Name and Number and BRI number) will be transported across the network link with the original call.

Centralized Attendant. This feature basically allows you in any switch to dial '0 and ring at the designated Central attendant group. Each system on the network requires its own designated attendant group for local usage, recalls and the like.

Intercom Calling/Uniform dialling plan. Station to station and station to group calls can be made across the network link without having to dial an access code for a call within the network. LCR can also be programmed to route calls across a network link to access local trunks in another networked system.

Centralized Voice Mail with Message Waiting Lights. This feature will only operate with Cadence and/or SVMi voicemail systems only. Users in one node can call forward(CFNR, CFB & CFU) to the Cadence group in a different switch and messages left in that switch will be indicated on the VMSG button in the origination switch. Messages can be returned to the CVMAA by pressing the VMSG button.

1.1.67 Off Premises Extensions (OPX)

A single line(tip and ring) extension from an 4SLI card may be connected to telephone company-provided OPX circuits to remote locations. 8SLI cards and KDB-SLIs do not support off premises extensions.

1.1.68 Operator Group

The operator group can contain 32 stations to answer incoming calls. Calls to this group can be set for distributed, sequential or unconditional ringing. Operators can use the In/Out of Group feature to meet flexible operator requirements.
Operator groups are selectable per ring plan.

1.1.69 Overflow

OPERATOR

When calls ringing a operator group go unanswered, they can overflow to another destination after a programmed period of time. The operator group has its own timer. The overflow destination can be a station or station group.

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STATION GROUP

When calls ringing a station group go unanswered, they can overflow to another destination after a programmed period of time. Each station group has its own timer. The overflow destination can be a station or station group.

1.1.70 Override Code

This feature allows you to make emergency outside calls from a station that has a forced code such as Account code or authorization code enabled but without requiring them to enter a forced code. The basis of this feature is an override code table containing 8 entries of up to 14 digits each. The OfficeServ 500 will examine digits that are dialled from a station to see if they match any entry in the Emergency Number table. If the digits match the table, the system will process the call without requiring a forced code.

1.1.71 Paging

System software allows the use of four internal and four external paging zones. Stations can page any individual zone, all internal zones, all external zones or all zones simultaneously. Using system programming, each station may be allowed or denied the abilities to make and/or receive page announcements to any zone or combination of zones.

1.1.72 Park Orbits

The system has 10 park orbits(0-9). These orbits can be used to park calls prior to paging and allows the call to be retrieved by dialling a park code plus the orbit number. Calls parked in this manner can also be retrieved by dialling the park pickup code plus the station or trunk number. This feature is in addition to Call Park and Page.

1.1.73 Prime Line Selection

Any station can be programmed to select a specific line, trunk group, telephone number, station or station group when the handset is lifted or the speaker button is pressed(same as Hot Line feature).

1.1.74 Private Lines

For private line use, stations can be prevented from dialling and/or answering any line.

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1.1.75 Programmable Line Privacy

Each outside line can be programmed to ignore the automatic line privacy. This allows up to four other parties to join your conversation by simply pressing the line button. This is similar to 1A2 button telephone operation.

1.1.76 Programmable Timers

There are over 50 programmable system timers to allow each installation to be customized to best fit the end user's application.

1.1.77 Programmed Message Service

Programmed Messages can be set on each extension. The Programmed Messages are displayed on the LCD screen when call arrives from another extension. In MCP version, the Programmed Messages can only be set at the system level. In MCP2 version, 15 messages are set at the system level and 5 messages are set separately for each extension.

1.1.78 Recalls

Calls put on hold, transferred or camped-on to any station will recall to the originating station if not answered within a programmable time. A recall that goes unanswered for the duration of the attendant recall timer will recall to the system operator group. Hold, transfer, camp-on and attendant recalls have individual programmable timers. Calls recalling to buttons with tri-colored LEDs will flash amber.

1.1.79 Remote Programming-PC

Remote programming allows the technician to access the system database from a remote location for the purpose of making changes to the customer data. Customer-provided modems and a PC using an optional software package will be needed to implement this feature.

1.1.80 Ring Modes

Time Based Routing-plans

Each Trunk line can be programmed to ring at any station or station group. Each line can be assigned a ring destination based on six(6) different ring plans based on time of day and the day of the week.

Automatic/Manual

Ring destinations will automatically change based on time of day and day of week. At any time the system can be manually forced into a specific ring plan. It will remain in this ring plan until manually taken out.

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Holiday Schedule

The system has a table of 60 dates that are used to define holidays. On a date designed as a holiday the system will remain in a ring plan for that calendar day providing the system was already in night service. This feature will override the ring plan time table.

Temporary Override

At any time the system can be forced into a specific ring plan for a temporary period of time until the next scheduled ring plan automatically takes effect.

1.1.81 Ring Over Page

Any outside line can be programmed to ring over a customer-provided paging system. Outside lines, door phones and station groups may ring over page in the system ring plan mode.

1.1.82 Single Line Connections

Single line ports allow connection of a variety of single line telephones plus facsimile machines, answering machines, loud bells, computer modems, cordless phones and credit card machines. When connecting customer-provided equipment to these extensions, compatibility should be checked out before purchase to ensure correct operation. Central office ring cadence can be selected for SLT stations. This is helpful when optional devices cannot detect OfficeServ 500 intercom ring cadence.

1.1.83 Speed Dial Numbers

A library of 1500 speed dial numbers may be allocated as needed for MCP-M version software, 2000 speed dial numbers for MCP2-M version software and 2500 speed dial numbers for MCP-L and MCP2-L version software. The system list can have up to 500 numbers and each station can have up to 50 numbers. Speed dial numbers are assigned in blocks of ten. Each speed dial number may contain up to 24 digits.

1.1.84 Speed Dial by Directory

The OfficeServ 500 system provides you with the ability to look up a speed dial number and place the call. There are three speed dial selections: personal, system and station. This feature requires a display phone.

1.1.85 Spot View Interface

Spot Call Plus

The caller information is displayed on the LCD screen of the phone and your PC screen.

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Spot News

Information from the Internet and internal information are displayed on the LCD screen in text.

Spot Choice

Information services on stock, fortune, bio-rhythm, etc are displayed upon your choice.

1.1.86 Station Hunt Groups

System programming allows up to 30 station hunt groups on an MCP-M, 50 station hunt groups on an MCP-L, 40 station hunt groups on an MCP2-M and 80 station hunt groups on an MCP2-L system. One of three ring patterns-sequential, distributed and unconditional-is available for each group. Each unconditional group may contain a maximum of 32 stations and each sequential and distributed group may contain a maximum of 48 stations. A station may be assigned to more than one group.
Each station group has its own recall timer for calls transferred to that group.

1.1.87 Station Message Detail Recording (SMDR)

The system provides records of calls made, received and transferred. Connecting a customer-provided printer or call accounting system will allow collection of these records. Each call record provides the following details : station number, outside line number, start date, start time, duration of call, digits dialled(maximum 18) and an account code if entered. The system may print a header followed by 50 call records per page or send continuous records with no header for use with a call accounting machine. See the sample printouts.

The SMDR format contains many options that allow it to be customized for a company's individual needs. Options to print include incoming calls, outgoing calls, in and out of group status, change in DND status and authorization codes.

1.1.88 System Alarms

A DISA alarm will warn the customer if the DISA security system has been triggered by too many incorrect password attempts. The alarm can ring any station or group of stations and show an appropriate display at the assigned stations.

1.1.89 System Maintenance Alarms

The OfficeServ 500 continuously performs internal system diagnostics. When either a major or minor fault is detected the system can ring stations with an ALARM BUTTON assigned. The phone display shows information that includes the description, location and date and time stamp for each alarm.

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A log of 100 alarms are stored in a buffer and can be reviewed at a display phone or sent to a printer(see 'Sample Alarm Report' section of this guide).

System Maintenance Alarms are only available in MCP2 card and MCP card with a LAN module.

1.1.90 System Directory

Each station, station group and outside line can have an 11 character directory name. This name will appear on phone displays to provide additional information about lines and stations.

1.1.91 Tenant Service (2)

There are several programs that allow the OfficeServ 500 to be installed in tenant applications. These features allow a technician to split the system in two with each tenant having individual control over operator groups, page zones, speed dial numbers, night service(manual or automatic), DISA and customer level programming. Each tenant is separate. No intercom calling between tenants is permitted.

1.1.92 Text Message Service

When a caller presses the CAMP-ON button on a busy line, the receiving party can press the TMSG button to send a preset text message to the caller. The Text Message function shall be enabled on both extensions. The MCP-M version does not support this function. In MCP-L version, the Programmed Messages can be sent as the Text Message, while the Text Messages can be set respectively for each extension in MCP2 version.

1.1.93 Toll Restriction

There are 500 allow and 500 deny entries on MCP2 and MCP-L version software, 250 allow and 250 deny entries on MCP-M version software of 11 digits each. Each of these entries can apply to dialling classes B, C, D, E, F and G. Expensive calls, as well as specific area and office codes, can be allowed or denied on a per-class basis. Class A stations have no dialling restrictions and Class H stations cannot make outside calls.

Any outside line may be programmed to follow station toll restriction or follow the toll restriction class assigned to it. Each station and trunk can have a day dialling class and a night dialling class.

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SPECIAL CODE TABLE

A Special Code Table of ten entries(four digits each) allows use of telephone company features such as CID blocking or call waiting disable without interference to toll restriction or LCR. The Special Code table allows use of these custom calling features on a per call basis.

1.1.94 Toll Restriction Override

Program options allow system speed dial numbers to follow or bypass a station's toll restriction class. In addition, you may make calls from a toll restricted station by using the walking class of service or authorization code feature.

1.1.95 Tone or Pulse Dialling

Outside lines can be programmed for either tone or pulse dialling to meet local telephone company requirements.

1.1.96 Traffic Reporting

The OfficeServ 500 system can store peg counts for various types of calls. These peg counts can be printed on-demand, daily, hourly, or up to three separate programmable shifts. The report includes statistics for each trunk, trunk group, station, station groups and page announcements.

Traffic Reporting is only available on MCP2 card and MCP card with a LAN module.

1.1.97 Transfer

System operation permits station users to transfer calls to other stations in the system. Transfers can be screened, unscreened or camped-on to a busy station.

1.1.98 Trunk Groups

Outside lines can be grouped for easy access by dialling a code or pressing a button. There are 11 trunk groups available for MCP-M, 50 trunk groups available for MCP-L, 30 trunk groups available for MCP2 version software.

1.1.99 Uniform Call Distribution (UCD)

UCD is used whenever you expect to have more ringing calls than people to answer them. It prevents callers from receiving busy signals or lengthy delays before answering. Callers reaching a busy station group are held in queue for an available agent. First

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and second announcements reassure the caller until an agent becomes free. Programmable automatic logout removes a station from the group if a call is placed to an unattended station, thus preventing unanswered calls. A wrap-up timer prevents calls to a station for a programmable period of time to allow the agent to finish up work associated with the call.

Requires optional hardware. Ask your dealer for details.

UCD GROUPS

The UCD group option allows callers in queue at a UCD group to be temporarily diverted to an announcement device and then placed back in the queue. A wrap-up timer will allow agents to complete paperwork before receiving the next UCD call.

Call Statistics

UCD supervisor positions using a display phone can monitor the number of calls in queue, the time that the oldest caller has been waiting, the total number of calls received for the current day and the average time a caller waits to be answered.

AGENT STATISTICS

UCD supervisor positions using a display phone can monitor the number of agents in a group and how many agents are currently logged in. Each station's status can be reviewed for the number of calls answered and the average call length of the current day.

GROUP SUPERVISORS

Multiple supervisors can be assigned to each group or one station can be given supervisor status for multiple groups. The group supervisor(using a display phone) can add and delete agents in real time from the group to handle the workload.

PRINTED REPORTS

Agent supervisors may run printed reports to a customer-provided printer, showing the data available on the supervisor displays.

1.1.100 Universal Answer

Station users may dial the Universal Answer code or press the UA button to answer any outside lines programmed to ring the UA device. The UA device can be a station, group of stations, common bell or ring over page.

1.1.101 Virtual Port

The OfficeServ 500 provides a Virtual Port. This Virtual Port is not connected to a physical cable, but has its own phone numbers and functional settings. There are two types of Virtual Ports, the SLT Line Type and the Digital Line Type. Virtual Port can be used as the parameter port for call transfer in CTI Applications such as the Internet Call Center(ICC), and can exchange saved information with real phones using the Set Relocation feature to implement a Mobile Office. Only the SLT Line Type Virtual Port is provided in MCP version, while the Digital Line Type Virtual Port is also provided in MCP2 version.

1.1.102 Voice Dialling

Calls can be made by pressing VDIAL button and verbally addressing the recipient's name. The name and number shall be registered in advance, and the Voice Dial Card shall be installed in the system.

1.1.103 Voice Mail-Inband Integration

The OfficeServ 500 system uses DTMF tones(inband signaling) to communicate with any compatible voice mail system. Stations can call forward to a voice mail system. When answered, the system will send DTMF tones routing the caller directly to the called station user's mailbox. Phone users can press one button to retrieve messages from the voice mail system. A Voice Mail Transfer button permits phone users to easily transfer a caller directly to an individual voicemail box without navigating through menus.

1.1.104 VoIP Networking (MCP2)

MCP2 provides networking through the VoIP Network. The MGI card is required for calling another system through VoIP Networking. The features provided by VoIP Networking conform to that of PRI/Q-SIG Networking.

1.1.105 VoIP Trunk Interface (H.323/SIP)

The OfficeServ 500 provides VoIP Trunk Interface. In MCP version, the ITM3 card is provided as a separate card. In MCP2 version, the system controls the calls, and a separate MGI card is required for connection to the speech path.

1.1.106 Walking Class of Service

This feature allows you to make calls or use features from a station that is restricted. You may either use the WCOS feature code or the authorization code feature. Both methods change the class of service to correspond with the station passcode or authorization code that is dialled. After the call is completed, the station returns to its programmed class of service.

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1.1.107 Wireless LAN Service (MCP2)

The OfficeServ 500 System, the primary device of SAMSUNG button phone, is mounted with the 8WLI card that has the wireless LAN function. One 8WLI card can support up to 8 WBS24s, the equipment for AP(Access Point). In the office where the WBS24 is installed, you can receive the wireless LAN service using mobile phone(WIP5000M), PC and PDA loaded with the wireless LAN card, or using wireless IP phone.

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2 STATION FEATURES

ADD-ON MODULE
APPOINTMENT REMINDER
AUTOMATIC HOLD
AUTOMATIC PRIVACY
BACKGROUND MUSIC
BUSY STATION CALLBACK
BUSY STATION INDICATIONS(BLF)
CALL FORWARDING
CALL LOGS
CALL PICKUP
DIRECT STATION SELECTION(DSS)
DO NOT DISTURB(OVERRIDE)
DO NOT DISTURB(PROGRAMMABLE)
DOOR LOCK RELEASE
EXCLUSIVE HOLD
GROUP LISTENING
HEADSET OPERATION
HEARING AID COMPATIBLE
LINE QUEUING WITH CALLBACK
LINE SKIPPING
LOUD RINGING INTERFACE
MANUAL SIGNALLING(Except MCP-M)
MESSAGE WAITING LIGHT/INDICATION
MUTE MICROPHONE/HANDSET
OFF-HOOK RINGING
OFF-HOOK VOICE ANNOUNCE(STANDARD)
ONE TIME DO NOT DISTURB
ON-HOOK DIALLING
PRIVACY RELEASE(Except MCP-M)
PROGRAMMABLE BUTTONS
PROGRAMMED STATION MESSAGES
PROTECTION FROM BARGE-IN
PULLOUT DIRECTORY TRAY
PULSE TO TONE SWITCH OVER
REDIAL
- AUTO RETRY
- LAST NUMBER
- Manual Retry with LNR
- MEMO REDIAL
- SAVE NUMBER

REMOTE HOLD
RING MODES
- AUTO ANSWER
- RING-EIGHT TONE CHOICES
- VOICE ANNOUNCE

RINGING PREFERENCE
SPEAKERPHONE
STATION LOCK
TRI-COLORED LIGHTS
VOLUME SETTINGS
- HANDSET
- BGM
- RINGING
- PAGING

* Requires optional hardware and/or software. Ask your dealer for details.

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2.1 Station Feature Descriptions

2.1.1 Add-On Module

48 BUTTON AOM

The 48-button Add-On Module(AOM) adds to the capability of any phone. The 48 programmable buttons with red buttons can be used for feature buttons, DSS/BLF buttons or one touch speed dial buttons.

64 BUTTON MODULE

The 64-button module adds to the capability of any phone. Up to four 64-button modules can be added to each phone. The 64 programmable red LED buttons with red LED can be used for feature buttons, DSS/BLF buttons or one touch speed dial buttons. A maximum of 8 can be installed on an OfficeServ 500 system running OfficeServ 500-M version software, or a maximum of 32 can be installed on an OfficeServ 500 system running OfficeServ 500-L version software.

2.1.2 Appointment Reminder

Phones with an alarm button can be used like an alarm clock. When programmed for a specific time, the phone will sound a distinctive ring to remind you of meetings or appointments. Alarms can be set for ‘today only’ or for every day at the same time. Up to three alarms may be set at each phone. Display phones can also show a programmed message when the alarm rings.

2.1.3 Automatic Hold

Station users can enable or disable automatic hold at their phones. While you are engaged on an outside(Trunk line) call, pressing another trunk button, route button or CALL button automatically puts the call on hold when this feature is enabled. Pressing TRSF, CONFERENCE, PAGE or a DSS button will always automatically place the call on hold. This type of automatic hold is not a user-selectable option.

2.1.4 Automatic Privacy

All conversations on outside lines and intercom calls are automatically private. The privacy feature can be turned off on a per-line basis.

Intercom calls cannot be automatically held.

2.1.5 Background Music

Phone users may choose to hear music through their phone speakers when optional external sources are installed. Each user may adjust this level by the use of a volume control program at the selected phone.

2.1.6 Busy Station Callback

When reaching a busy station, callers may request a callback by pressing one button or dialling a code. The system rings the caller back when that station becomes idle (a system-wide maximum of 100 callbacks for OfficeServ 500-M, 300 for MCP-L and 500 for MCP2-L are allowed at one time including busy station and busy trunk).

2.1.7 Busy Station Indications (BLF)

DSS/BLF buttons may be assigned to any phone or add-on module. These buttons will be off when the station is idle, light red when that station is in use and flash distinctively when that station is in the DND mode.

2.1.8 Call Forwarding

Station users can forward internal and outside calls to other destinations immediately (Forward All), when busy(Forward Busy) or if not answered in a programmable number of seconds(Forward No Answer). These forward destinations can all be different. Once a destination has been programmed, it can be turned on and off with a programmable button. Forward All takes priority over Busy and No Answer conditions.

In addition to the three usual methods of forwarding described above, a fourth option called Follow Me is available. This option allows a station user to set a Forward All condition from his/her station to another station while at the remote station.
To display the Follow Me condition, the TRSF button lights steady red at the station that is forwarded. The TRSF button also lights if Forward All is set and no button is programmed for Forward All.

In MCP, phone users can be given an external call forward button to forward their calls to an external phone number. In MCP2, phone users can set the external destination for all kinds of forwarding. Each outside line may be programmed to either follow or ignore station call forwarding.
A per-station option controls whether internal calls forward to voice mail or not.
Single line telephones must have the system administrator program this feature for them.

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2.1.9 Call Logs

With the call log feature, a display phone user can review up to 50 of the last incoming calls from the Caller ID review list or up to 50 of the last external telephone numbers that were dialled. The numbers can be viewed, stored and/or dialled using the associated soft buttons. LCR must be enabled for dialling and storing numbers from the CID review list. Optional hardware and/or software may be needed for Caller ID.

Call Logs are only available on MCP2 card and MCP card with a LAN module.

2.1.10 Call Pickup

With directed call pickup, you can answer calls ringing at any station by dialling a code plus that extension number. The group pickup feature allows you to answer any call ringing within a pickup group. Pickup buttons may be customized with extenders to allow pickup from a specific station or pickup group. The OfficeServ 500 has 99 programmable pickup groups.

2.1.11 Direct Station Selection (DSS)

Programmable buttons can be assigned as DSS buttons and associated with extension numbers. You press these buttons to call or transfer calls to the assigned stations.

2.1.12 Do not Disturb (Override)

The DND Override feature allows a phone with a DND Override button(DNDO) and the appropriate class of service to override the DND setting at a called phone.
This will allow you to go into DND while waiting for an important call and have that call transferred to them via a screened transfer from a station(for example your secretary) with a DNDO button.

2.1.13 Do not Disturb (Programmable)

The Do Not Disturb(DND) feature is used to stop all calls to a station.
System programming can allow or deny use of the DND feature for each station. Parties calling a station in DND will receive reorder tone. When in DND mode, calls may be forwarded to another destination. See Forward DND option. A phone without a DND button can activate DND via the feature access code. The ANS/RLS button will flash at 112 ipm(rapidly) when DND is set. There is a programmable option to allow a Trunk line to override DND at its ring destination if that destination is a single station.

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2.1.14 Door Lock Release

Stations programmed to receive calls from a door phone can dial a code to activate a contact closure for control of a customer-provided electronic door lock.

2.1.15 Exclusive Hold

Pressing HOLD twice will hold a call exclusively at a station so no other station can pick up that call. Intercom calls are automatically placed on exclusive hold.

2.1.16 Group Listening

This feature allows you to turn on the speaker while using the handset. It allows a group of people to listen to the distant party over the speaker without the microphone turned on.

2.1.17 Headset Operation

Every phone can be programmed to allow the use of a headset. In the headset mode, the hook switch is disabled and the ANS/RLS button is used to answer and release calls. Phone users may turn headset operation ON/OFF by phone programming or more easily by pressing the headset ON/OFF button. The headset button lights steady red when the phone is in headset mode. The ANS/RLS button lights if headset mode is activated by phone programming only.

2.1.18 Line Queuing with Callback

When the desired outside line is busy, you can press the CALLBACK button or dial the access code to place his/her station in a queue. You will be called back when the line is available(a maximum of 100 callbacks for OfficeServ 500-M, 300 callbacks for MCP-L and 500 callbacks for MCP2-L are allowed system-wide at one time including busy station and busy trunk).

2.1.19 Line Skipping

When you are talking on an outside line and the automatic hold feature is turned off, he/she may press an idle line button and skip to that line without causing the previous call to go on hold.

2.1.20 Loud Ringing Interface

The MISC daughter board has 1 relay for control of a customer provided loud ringing device.
This relay can be programmed to operate with a specific station or station group.

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2.1.21 Manual Signalling (Except MCP-M version software)

Phones can signal each other via a programmable button. This allows one station to alert another without establishing a voice conversation. Each press of the button results in a 500 milliseconds of ring tone being set to the intended station. An individual manual signaling button must be programmed for each station to be signaled.

2.1.22 Message Waiting Light/Indication

When a message indication is left at a phone, the MESSAGE button will slowly flash red. Single line telephones will receive a distinctive dial tone to notify them that a message is waiting. Message waiting indications can be left for any station or group of stations.

2.1.23 Mute Microphone/Handset

Any phone user can mute the phone's handset transmitter by pressing the MUTE button. In addition, phone users can also mute the phone microphone while the phone is in speakerphone mode.

2.1.24 Off-Hook Ringing

When a phone is in use, the system will provide an off-hook ring signal to indicate that another call is waiting. The ring signal is a single ring repeated. The interval is controlled by a system-wide timer. Single line stations will receive a tone burst through the handset receiver instead of a ring.

2.1.25 Off-Hook Voice Announce (Standard)

Phones may receive a voice announcement while on another call. The calling station must have an OHVA button. When transferring a call to a busy phone or while listening to busy signal, the station user can press the OHVA button to make an OHVA call to the busy phone. If the called phone is in the DND mode, it cannot receive OHVA calls.

2.1.26 One Time Do Not Disturb

The Do Not Disturb(One Time) feature is used to stop all calls to a station when you are on an outside line and does not want to be disturbed for the duration of the call. Upon completion of the call, DND is cancelled and the station is returned to normal service. This feature requires a programmed button.

2.1.27 One Touch Dialling Buttons

Frequently used speed numbers can be assigned to one touch dialling buttons for fast accurate dialling.

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2.1.28 On-Hook Dialling

Any phone user can originate calls without lifting the handset. When the called party answers, you may speak into the microphone or lift the handset for more privacy.

2.1.29 Privacy Release (Except MCP-M version software)

This feature will allow another station to join in on your conversation by temporarily releasing privacy on the Trunk line from your phone.

Requires a Privacy Release button to be programmed on your phone. A maximum of three(3) other people can join in. This uses one of the conference circuits in the system.

2.1.30 Programmable Buttons

LCD 24B and STD 24B phones have 24 programmable buttons, LCD 12B and Basic 12B phones have 12, and 6B phones have 6. Each button can be programmed for more than 25 different uses to personalize each phone. Examples of buttons include individual outside line, individual station, group of lines, group of stations and one touch speed dial buttons. Using these buttons eliminates dialling access codes.

The following feature buttons have extenders that make them more specific : SPEED DIAL, SUPERVISOR, PAGE, DSS, DIRECTED PICKUP, GROUP PICKUP, DOOR PHONE, BOSS, PROGRAMMED MESSAGE, IN AND OUT OF GROUP, FORWARD and VOICE MAIL TRANSFER. The extender can be a station, a group or another identifying number.

2.1.31 Programmed Station Messages

Any station may select one of 20 or 30 messages to be displayed at a calling party's phone(20 for MCP-M version software, 30 for MCP-L version software and 20 for MCP2 version software). Ten messages are factory-programmed but may be reprogrammed. On MCP-L version software last five can be individually customized, e.g., RETURN ON : MAR/22 and RETURN AT 3:30p the remaining messages can be customized by the system administrator(16 characters maximum). On MCP-M version software last two messages can be used to similar to last five messages of the MCP-L version software but the message contents are programmable per tenant bases and can have only one date or time value per station. On MCP2 version software last five messages can be programmable per station basis.

The calling party must have a display phone to view these messages.

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2.1.32 Protection from Barge-In

Each station can be programmed as secure or not secure. Secure stations cannot be barged-in on.
A station that is not secure cannot be barged-in on when talking to a secure station.

2.1.33 Pullout Directory Tray

A pullout directory tray is conveniently located beneath all phones. It is used to record station directory names and speed dial numbers.

2.1.34 Pulse to Tone Switchover

When dialling a number on a dial pulse network, a station user can dial # and the iDCS system will begin to send DTMF.

2.1.35 Redial

There are three types of external redial available to all station users. Each type can redial up to a maximum of 18 digits.

- AUTO RETRY-When an outside number is dialled and a busy signal is received, the auto retry feature can be used to reserve the outside line and automatically redial the number for a programmable number of attempts(available to phone users only).
- LAST NUMBER-The most recently dialled number on a Trunk line is saved and may be redialled by pressing the redial button or dialling the LNR access code.
- MANUAL RETRY with LNR-When you make an outside call and receive a busy signal you can press the LNR button to redial the same number again. This operation can be manually repeated for a limited number of attempts as defined by system programming(available to phone users only).
- MEMO REDIAL(Except MCP-M version software)-When you are calling directory assistance you can store the number you are given using the dial pad and SAVE number feature. There is no need for a pencil and paper(available to phone users only).
- SAVE NUMBER-Any number dialled on a Trunk line may be saved for redial at a later time.

2.1.36 Remote Hold

When you wish to place a call on hold at another station, press TRSF and dial the station number(or press the appropriate DSS button). Press the HOLD button. This will place the call on system hold on an available CALL button or Line Button at the remote station.

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2.1.37 Ring Modes

Each phone user can select one of three distinct ways to receive intercom calls. The phone can automatically answer on the speakerphone, voice announce through the speaker or receive ringing. When the ring mode is selected, phone users can choose one of eight distinct ring tones. Forced Auto Answer is invoked by the calling station and is controlled by the calling station's class of service.

2.1.38 Ringing Preference

Lifting the handset or pressing the speaker button automatically answers a call ringing at the phone. Using this method, you are assured of answering the oldest call first. When ringing preference is turned off, you must press the flashing button to answer. You may answer ringing lines in any order by pressing the flashing button.

2.1.39 Speakerphone

DCS LCD 24B and DCS LCD 12B phones have built-in speakerphone. The speakerphone enables calls to be made and received without the use of the handset. All iDCS phones are speakerphones. The iDCS 28 Button and the iDCS 18 Button can have a Full Duplex Speakerphone Module added.

Station Lock

With a programmable personal station passcode, any phone or single line station can be locked and unlocked to control use of each telephone. There are two lock options : 1=LOCKED OUTGOING and 2=LOCKED ALL CALLS.

	0(UNLOCKED)	1(LOCKED OUTGOING)	2(LOCKED ALL CALLS)
Make outside calls	YES	NO	NO
Receive outside calls	YES	YES	NO
Make intercom calls	YES	YES	NO
Receive intercom calls	YES	YES	NO

2.1.40 Tri-Colored Lights

LCD 24B and STD 24B phones have 16 buttons equipped for tri-colored LED indications(green, red and amber). LCD 12B and Basic 12B models have six of these buttons. To avoid confusion, your calls always light green, other calls show red and recalls light amber.

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2.1.41 Volume Settings

Each phone user may separately adjust the volume of the ringer, speaker, handset receiver, background music, page announcement and off-hook ring tone.

2.1.42 Wall-Mountable phones

Each phone, add on module and 64 button module can be wall mounted by reversing the base wedge. The newest base wedge may not fit all wall mounting scenarios so in these cases the original wall mount/base wedge unit should be used.

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3 DISPLAY FEATURES

ACCOUNT CODE DISPLAY
CALL DURATION TIMER
CALL FOR GROUP IDENTIFICATION
CALL PROCESSING INFORMATION
CALLER ID INFORMATION
CALLING PARTY NAME
CALLING PARTY NUMBER
CONFERENCE INFORMATION
DATE AND TIME DISPLAY
DIALLED BY NAME
DIALLED NUMBER
ENHANCED STATION PROGRAMMING
IDENTIFICATION OF RECALLS
IDENTIFICATION OF TRANSFERS
MESSAGE WAITING CALLER NUMBER
OUTSIDE LINE IDENTIFICATION
OVERRIDE IDENTIFICATION
PROGRAMMED MESSAGE DISPLAY
SOFT BUTTONS
STOPWATCH TIMER
TEXT MESSAGING(Except MCP-M Version)
UCD SUPERVISOR DISPLAYS

3.1 Display Feature Descriptions

3.1.1 Account Code Display

Account codes are conveniently displayed for easy confirmation. If entered incorrectly, users may press the ACCOUNT button again and reenter the account code.

3.1.2 Call Duration Timer

The system can automatically time outside calls and show the duration in minutes and seconds. Station users may manually time calls by pressing the TIMER button.

3.1.3 Call for Group Identification

When a call is made to a station group, the display shows [CALL FOR GROUP] and your group number. These calls can be answered with a different greeting than calls to your extension number.

3.1.4 Call Processing Information

During everyday call handling, the phone display will provide information that is helpful and in some cases invaluable. Displays such as [CALL FROM 203], [TRANSFER TO 202], [701 : RINGING], [TRANSFER FM 203], [708 busy], [Camp on to 204], [Recall from 204], [Call for 501], [message from 204] and [FWD ALL to 204] keep users informed of what is happening and where they are. In some conditions, you are prompted to take action and in other cases you receive directory information.

3.1.5 Caller ID Information

Caller ID information is dependent on the use of display phones. The following list explains the displays that are used with Caller ID.

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Name/Number Display

Each display phone user can decide if he/she wants to see the Caller ID name or Caller ID number in the display. Regardless of which one is selected to be seen first, the NND button is pressed to view the other piece of CID information.

Next Call

In the event that there is a call waiting or a camped-on call at your phone, you can press the NEXT button to display the Caller ID information associated with the next call in queue at the station. Either the Caller ID name or number will show in the display depending on the NND selection.

Save Caller ID Number

At any time during an incoming call that provides Caller ID information, you may press the SAVE button. This saves the Caller ID number in the Save Number feature. Pressing the SAVE number redial button will dial the Caller ID number.
The system must be using LCR to dial the saved number.

Store Caller ID Number

At any time during an incoming call that provides Caller ID information, you may press the STORE button. This saves the Caller ID number as a speed dial number in the personal speed dial list. The system must be using LCR to dial the stored number.

Inquire Park/Hold

When you are informed that an incoming call is on hold or has been parked, you may view the Caller ID information before you retrieve the call. This will influence how you choose to handle the call.

Caller ID Review List

This feature allows display phone users to review Caller ID information for calls sent to their stations. This list can be from ten to fifty calls in a first in, first out basis. The list includes calls that were answered and calls that rang the user's station but that were not answered. When reviewing this list, the user can press one button to dial the person back. The system must be using LCR to dial the stored number.

Investigate

This feature allows selected stations with a special class of service to investigate any call in progress. If Caller ID information is available for an incoming call, the selected stations can know to whom the OfficeServ 500 user is speaking.
On outgoing calls, the selected stations can see who was called. After investigating, the selected stations may barge-in on the conversation, disconnect the call or hang up.

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Abandon Call List

The system has a system-wide abandon call list that stores Caller ID information for calls that rang but were not answered. The list is accessed using the operator's passcode. When reviewing this list, you are provided options to CLEAR the entry or DIAL the number. You can use the NND button to toggle between the Caller ID name, Caller ID number and the date and time the call came in. The system must be using LCR to dial numbers from the abandon call list. The abandoned call list will store up to 100 unanswered calls.

3.1.6 Calling Party Name

For intercom calls, LCD 24B and LCD 12B phones show the calling party's name before answering. The names must be stored in the system directory list and can be up to 11 characters long.

3.1.7 Calling Party Number

When an intercom call is received, all display stations show the calling party's extension number before the call is answered.

3.1.8 Conference Information

When a conference is set up, each extension and outside line number is displayed at the controlling station when it is added. When a station is added, its display shows [Conf with xxx] alerting the user that other parties are on the line.

3.1.9 2nd Time Display

In the idle condition, the current date and time are conveniently displayed. Display phones can have a 12 or 24 hour clock in either the WESTERN or ORIENTAL display format with information shown in upper case or lower case letters.

3.1.10 Dial by Name

Each station and speed dial number can have an associated directory name.
Any station or speed dial number can be selected by scrolling alphabetically through a directory list. There are three directories :

1) System wide speed dial list
2) Personal speed dial list
3) Station directory list

This online 'phone book' allows display phone users to look up and dial any speed dial number or station in seconds.

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3.1.11 Dialled Number

When an outside call is made, digits are displayed as you dial them.
If the display indicates an incorrect number was dialled, you can quickly hang up before billing begins.

3.1.12 Enhanced Station Programming

Personal programming options are easier to select and confirm with the help of the display.

3.1.13 Identification of Recalls

Hold recalls and transfer recalls are identified differently than other ringing calls. Hold recalls indicate the recalling line or station number and the associated name. Transfer recalls indicate the recalling line or station and where it is coming from.

3.1.14 Identification of Transfers

The display will identify who transferred a call to you.

3.1.15 Message Waiting Caller Number

When the message indication is on, pressing the MESSAGE button displays the station number(s) of the person(s) who have messages for the user. Display phone users can scroll up and down to view message indications.

3.1.16 Outside Line Identification

Each line can be identified with an 11 character name. Incoming calls display this name before the call is answered. This feature is helpful when individual lines must be answered with different greetings.

3.1.17 Override Identification

If another station barges-in on your conversation, the display will alert you with a [Barge from 2xx] display if the system is set for barge-in with tone.

3.1.18 Programmed Message Display

Preprogrammed station messages set by other stations are displayed at the calling station's phone.

3.1.19 Soft buttons

Below the display, there are three soft buttons and a SCROLL button. These buttons allow you to access features in your class of service without requiring the phone to have designated feature buttons.

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3.1.20 Stopwatch Timer

Display phone users find this feature very convenient to time meetings, calls and other functions. Users simply press once to start the timer and press again to stop the timer.

3.1.21 Text Messaging (Except MCP-M version software)

This feature allows two display phone users to respond to each other with preprogrammed messages. After receiving an Off Hook Voice Announcement or Station Camp-On, you may respond with a text message while continuing to talk and listen to your outside party. The other station can view this message and take the appropriate action or respond back with another text message.

In MCP-L version, there can be 30 messages stored in the system memory that can be sent to another display phone. These messages are Programmed Messages. In MCP2 version, there are additional Text Messages per station basis. Only the display phones that are allowed in system programming will receive the TMSG soft button in the display and can use this feature.

3.1.22 UCD Supervisor Displays

With the optional AA card, when UCD is used, multiple supervisors can view information about the UCD groups calls or agents.

Call Screen

This allows the supervisor to view how many calls are in queue, the longest wait time, how many calls have been received today, what the average time in queue is and how many calls were abandoned.

Agent Screen

This allows the supervisor to monitor how many agents are logged in, check each agents status(IN GROUP, OUT OF GROUP, or DND), view each agents total number of calls, average call length or average ring time.

Accessing this screen will also allow a Supervisor to change the status of each agent (IN GROUP, OUT OF GROUP, or DND).

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4 SAMPLE DISPLAYS

LCD 12B and LCD 24B display model phones have a large, easy-to-read, 32 character liquid crystal display. Helpful call processing information is provided so everyday call handling is quick and easy. Here are just some of the displays you may see.

```
209: Tim Kelly
RRI 23 Sep
```

Idle display shows extension, name, day, date and time.

```
Camp on to 203
Wait for answer
```

This station is camped-on to extension 203 and is waiting for 203 to answer.

```
Call for 501
202 Mr.  Smith
```

This station in the sales department is receiving a group call from Mr. Smith.

```
Call for 501
706 Local #6
```

This display tells you this is a new incoming call to the sales department.

```
203: Busy
CBK MSG CAMP →
```

This station is calling station 203 which is currently busy.

```
OHVA from 203
          REJECT
```

This station is receiving an off-hook voice announcement from station 203.

```
Conf with 203
John
```

This station is on a conference call with John, extension 203. Assume other parties will hear your conversation.

```
CONF: 202 702
          CONF →
```

This station is on a conference call with extension 202 and trunk 702 and has the option to add two more parties.

```
Transfer to 203
John
```

This station is transferring a call to John at extension 203.

```
Call from 201
Operator
```

This station is receiving a call from extension 201.

```
DO NOT DISTURB
ON        OFF
```

This station is setting the Do Not Disturb feature.

```
703 Local 3
CONF PAGE MUTE →
```

This station is receiving a call from extension 201.

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5 SAMPLE CALLER ID DISPLAYS

```
13054264100
702: RINGING
```

This display shows an incoming call from 1-305-426-4100 on Line 702 ringing directly at your station.

```
05/25, 09: 41, 702
CLEAR   NND
```

This display shows the information on the abandoned call list. This call came in on May 25 at 9:41 A.M on line 702. You can CLEAR the entry. DIAL the caller back or examine further NND information.

```
13054264100
TRANSFER FM 201
```

This display shows an incoming call from 1-305-426-4100 on Line 702 ringing directly at your station.

```
SAMSUNG TELECOM
CLEAR   NND
```

This display shows an entry in a station review list showing the three initial options. The arrow indicates other options available to you by pressing the Scroll button.

```
SAMSUNG TELECOM
BARGE NND  DROP
```

This display shows an investigation of a station that is talking to Samsung Telecom. Investigator can BARGE-in to the conversation, DROP the call from the system of examine further NND information.

```
13054264100
  NEXT  NND  ANS
```

This display is seen while examining calls in oueue at your phone.

```
SAMSUNG TELECOM
CALL FOR: 500
```

This display shows an incoming call from Samsung Telecom ringing at group 500.

```
TALKING TO: 203
BARGE       DROP
```

This display can be seen when investigating an intercom call.
The investigator can BARGE-in or DROP the connection.

```
SAMSUNG TELECOM
  ANS  NND  IGNORE
```

This display is seen while using the INQUIRE feature. It shows the three options available while you are checking on a held or parked call.

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6 SAMPLE UCD DISPLAYS

```
005 calls in
queue now
```

There are five calls currently waiting to be answered by the UCD group.

```
06 available
04 logged in
```

There are six members in the group. Four of the members are currently logged in.

```
longest wait
time is 02:24
```

The longest call on hold(waiting to be answered) was for two minutes, 24 seconds. This data applies to all calls since the supervisor data was last cleared. It does not necessarily represent calls currently in queue.

```
201: answered
065 calls today
```

The agent at station 201 has answered 65 calls today.

```
124 calls
received today
```

The UCD group has received 124 calls today.

```
201: average
call time 04:43
```

The average call length for station 201 is four minutes and 43 seconds.

```
average time in
queue is 03:51
```

The average time on hold(waiting to be answered) is three minutes and 51 seconds.

```
202: Sondra
STATUS: OUT
```

Station 202 is currently out of the group.(The display can also show IN GROUP and DND.)

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7 SAMPLE SMDR PRINTOUT (WITHOUT CALLER ID)

SMDR REPORT FOR [xxx] Mar/21/2003 13:49

T	EXT	AUTH	TRK	MM/DD	STT.TIME	DURATION	FG	DIALLED DIGIT	ACCOUNT CODE
1	3951		725	03/21	13:51:17	00:00:08	IA		
1	3951		725	03/21	13:51:25	00:00:14	IT		
1	217		744	03/21	13:51:29	00:00:14	IA		
1	235		725	03/21	13:51:39	00:00:06	T		
1	219		726	03/21	13:51:25	$:10.75	O	3056401067	*1234567890#
1	217		744	03/21	13:51:43	00:00:40	I		
1	278		725	03/21	13:53:40	00:00:07	O	18007864782	
1	3951		726	03/21	13:54:45	00:00:07	IA		
1	219			03/21	13:55:03			GROUP OUT	
1	3951		726	03/21	13:54:52	00:00:30	IT		
1	217		726	03/21	13:55:22	00:00:16	TT		
1	235			03/21	13:55:30			DND ON	
1	218		726	03/21	13:55:38	00:00:33	TT		
1	235			03/21	13:57:50			DND OFF	
1	279	6398	727	03/21	13:57:32	$:13.25	O	3056401066	
1	219			03/21	14:00:45			GROUP IN	
1	219		726	03/21	13:56:11	00:05:38	T		
1	296		725	03/21	13:54:40	00:07:06	O	3055922900217	
1	219		717	03/21	14:03:57	00:00:15	O	19544530000	*1234567890#

Tenant 1 Digit
Extension 2-4Digit
Authorization Code 4 Digit
Trunk line No. 2-4Digit
Data Call Made or Received Month : Day
Time Call Made or Received Hrs : Mins : Secs
Call Duration Hrs : Mins : Secs
Call Type Flag 2 Characters
Telephone No. Dialled 1-18 Digits
Account Code 1-12 Digits

Call Type Flag Definitions

O	Outgoing	
I	Incoming	Call
DI	DISA call in	
DO	DISA call out	
FO	Outgoing record of forwarded call	
IA	Incoming Ring Time Before Being Answered	
DE	DISA call with error	
T	Transferred call that was terminated	
IT	Incoming transfer	
FI	Incoming call forwarded to an external number	
OT	Outgoing transfer-Outgoing call made and transferred	
TT	Caller received a transferred call and transferred it again	

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8 SAMPLE SMDR PRINTOUT (WITH CALLER ID NUMBER)

SMDR REPORT [xxx] Mar/21/2003 13:49

T	EXT	AUTH	TRK	MM/DD	STT.TIME	DURATION	FG	DIALLED DIGIT	ACCOUNT CODE	CID/ANI NUMBER	CID/ANI NAME
1	395		725	03/21	13:51:17	00:00:08	IA			13055922900	SAMSUNG TELECOM
1	395		725	03/21	13:51:25	00:00:14	IT				
1	217		744	03/21	13:51:29	00:00:14	IA				
1	235		725	03/21	13:51:39	00:00:06	T			13055922900	SAMSUNG TELECOM
1	219		726	03/21	13:51:25	$ 10.75	O	3056401067	*1234567890#		
1	217		744	03/21	13:51:43	00:00:40	I			13055559748	PIZZA DELIVERY
1	278		725	03/21	13:53:40	00:00:07	O	18007864782			
1	395		726	03/21	13:54:45	00:00:07	IA				
1	219			03/21	13:55:03			GROUP OUT			
1	395		726	03/21	13:54:52	00:00:30	IT			13055922900	SAMSUNG TELECOM
1	217		726	03/21	13:55:22	00:00:16	TT			13055922900	SAMSUNG TELECOM
1	235			03/21	13:55:30			DND ON			
1	218		726	03/21	13:55:38	00:00:33	TT			13055556420	PIZZA DELIVERY
1	235			03/21	13:57:50			DND OFF			
1	279	6398	701	03/21	13:57:32	$ 13.25	O	3056401066			
1	219			03/21	14:00:45			GROUP IN			
1	219		726	03/21	13:56:11	00:05:38	T	3055922900		13055922900	SAMSUNG TELECOM
1	296		725	03/21	13:54:40	00:07:06	O	3055922900			
1	219		717	03/21	14:03:57	00:00:15	O	19544530000	*1234567890#		

Tenant 1 Digit
Extension 2-4Digit
Authorization Code 4 Digit
Trunk line No. 2-4Digit
Data Call Made or Received Month : Day
Time Call Made or Received Hrs : Mins : Secs
Call Type Flag 2 Characters
Call Duration Hrs : Mins : Secs
Telephone No. Dialled 1-18 Digits
Account Code 1-12 Digits
Caller ID/ANI Number 1-15 Digits
Caller ID/ANI Name 1-15 Characters

DE DISA call with error
T Transferred call that was terminated
IT Incoming transfer
FI Incoming call forwarded to an external number
OT Outgoing transfer-Outgoing call made and transferred
TT Caller received a transferred call and transferred it again

9 SAMPLE UCD REPORT

```
UCD GROUP 529 : SALES

FROM : SUN 02 Feb 00:00
TO   : SUN 02 Feb 02:54


CALL STATISTICS
===============
AVERAGE RING TIME(TIME TO ANSWER)......00:40
NUMBER OF TIMES ALL AGENTS BUSY........00002
AVERAGE TIME IN QUEUE..................00:51
TOTAL CALLS RECEIVED...................00011
LONGEST QUEUE TIME(TODAY)..............02:14
TOTAL CALLS ABANDONED..................00004


AGENT STATISTICS
================
MEMBER   AGENT   NAME   CALLS       AVERAGE     RING
                        ANSWERED    CALL TIME    TIME
-----------------------------------------------------------
01         210    JOHN    0002        01:55     00:05
02         211    SAM     0001        02:18     00:06
03         208    MIKE    0003        01:22     00:04
04         207    PETER   0001        03:16     00:05


UCD GROUP 515 : SUPPORT

FROM  : MON 03 Jan 08:30
TO    : SUN 02 Jan 02:54


CALL STATISTICS
===============
AVERAGE RING TIME(TIME TO ANSWER)......00:07
NUMBER OF TIMES ALL AGENTS BUSY........00005
AVERAGE TIME IN QUEUE..................01:06
TOTAL CALLS RECEIVED...................00023
LONGEST QUEUE TIME(TODAY)..............01:02
TOTAL CALLS ABANDONED..................00001

AGENT STATISTICS
================
MEMBER   AGENT   NAME    CALLS      AVERAGE    RING
                         ANSWERED   CALL TIME   TIME
-----------------------------------------------------------
01         223    FRED     0012       02:33    00:08
02         213    JANE     0010       01:04    00:04
```


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10 UCD CALL STATISTICS

Calls in Queue Now

How many calls are currently in queue.
This statistic is a real time statistic and so will not print on a report.

Abandoned Calls

This shows the number of callers that reached the UCD group, but hung up before being answered. A high number probably means that there are not enough agents available and the wait time is too long.

Average Ring Time

This is calculated from the time an agent begins to ring until the time an agent answers the call, this does not include ringing at an agent station that does not answer or is logged out because of the ring next option.

Number of Times All Agents Busy

This is the number of times that a call is placed to an UCD group and all agents are busy or out of group. This check is made when the call is first placed to the group.

E.g.,) If there are 5 members in a group, 3 are Out of Group one is busy and one is idle, and a call is placed to the group, because there is an idle station the all agents busy counter is not incremented.

If the idle station rings, does not answer and is logged out, although the condition of the group is now all agents busy, the check has been made and the agent busy statistic does not increment.

Also if a call comes into a group with all agents busy and then one becomes idle, the busy counter will increment because the check has been made.

Average Time in Queue

This is calculated as an average of all the calls that were in queue.

Note that this is ONLY an average of the calls that were in queue. The caller must have overflowed to the UCD recording to be considered in queue.

A call is considered in queue until it is answered or until it goes to the final destination.

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Total Calls Received

The total number of times that calls were sent to a group. This includes calls that were answered by the group, calls that went to a group with all agents busy or out of group, calls that are abandoned and calls that go to UCD final destination.
This includes intercom calls to the UCD group.

If this number is less than the total calls received by all the agents it is possible that calls were transferred from one agent to another.

If this number is more than the total calls received by all the agents it is possible that calls were unanswered by an agent and went to final destination or callers hung up while in queue.

This statistic includes :
a) Calls answered by agent.
b) Calls that are not answered by an agent and go to final destination.
c) Calls that are sent to the UCD group but callers hang up before being answered.

Longest Queue Time Today

This shows the longest call in queue today. The queue time is calculated as follows :
a) Queue time begins when a call is queuing.
b) Queue time ends when a caller is either
- Answered by an agent
- System gets disconnected from Trunk line or
- Caller is transferred to final destination

Longest Queue Time Now

This shows the longest call currently in queue. The queue time is calculated as follows :
a) Queue time begins when a caller starts to hear the first UCD message.
b) Queue time ends when a caller is either
- Answered by an agent
- System gets disconnected from trunk line or
- Caller is transferred to final destination

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11 UCD AGENT STATISTICS

Logged in

The number of stations programmed in the UCD group and the number of stations that are currently logged in.

This statistic is a real time statistic and so will not print on a report.

Status

This screen shows the agents name, extension number and status. The status can be In Group, Out of group or in DND.

This statistic is a real time statistic and so will not print on a report.

Calls Answered

The total number of calls answered by the agent. This does not include ring no answer to an agent station.

If this total number is less than the calls received by the group it is possible that calls were unanswered by an agent and went to final destination or that callers hung up while in queue.

If this total number is more than the calls received by the group it is possible that calls were transferred from one agent to another.

Average Call Time

This is an average of all the call durations for the agent.

Average Ring Time

This is an average of all the ring times for the agent. Ring times are previously explained.

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12 SAMPLE TRAFFIC REPORT

```
TRAFFIC REPORT FOR [ SAMSUNG ] Mar/21/2003 13:35

************************ SYSTEM STATISTICS ************************

BEGINNING:  Mar/15/2003  00:42            ENDING: Mar/21/2003 13:32

    ACTIVITY                                  SYSTEM TOTAL

    INCOMING TRUNK CALLS - ANSWERED...................     3041
    INCOMING TRUNK CALLS - NOT ANSWERED...............       26
    OUTGOING TRUNK CALLS .............................     2168
    A SELECTED TRUNK WAS BUSY.........................       44

    INTERCOM CALLS - COMPLETED .......................    7178
    INTERCOM CALLS - NOT ANSWERED ....................    1540

    TRUNK RECALLS TO STATION .........................     145
    TRUNK RECALLS TO OPERATOR GROUP ..................      32

    INTERNAL PAGE USED ...............................      35
    EXTERNAL PAGE USED ...............................      79
    ALL PAGE USED ....................................     231

*************************  TRUNK GROUPS  *************************

 GROUP     OUTGOING    BUSY
    9       1245      18
  800        521       3
  801         20       3
  802          0       0
************************  INDIVIDUAL TRUNKS ************************

TRUNK    TRUNK-NAME    ATTA     ANSD     NOT-ANSD     OUTGOING   BUSY
  701      LOCAL 1        0      737         0           19        12
  702      LOCAL 2        0      541         4           26        11
  703      LOCAL 3        0      290         1           37        21

************************ STATION HUNT GROUPS ************************

<————————— OUTSIDE CALL —————————>                          <-INTERCOM->
GROUP   ANSD   NOT-ANSD                                         ANSD
  500    439       19                                           61
  501    261       37                                           38
  502     40        2                                           77
  503     87        5                                          162
  504     19        1                                           44
```


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```
************************  INDIVIDUAL STATIONS  ***********************

<———————— OUTSIDE CALL ————————————————————————>          <-INTERCOM  —>
EXT STATION-NAME ATTA ANSD NOT-ANSD DIALLED ICM-TRSF TRK-TRK PICKUP ANSD DIALLED
201   Operator     9   360     11      15      341      0       0     39    72
202   Barbara     12    60      2      80       20      0      12     49    66
203   Ivania       4    25      1      36        3      0      18     86    29
```

13 TRAFFIC REPORT OVERVIEW

```
A ********************** SYSTEM STATISTICS **********************

1  BEGINNING: Mar/15/2003 08:00          ENDING: Mar/15/2003 17:30

2  ACTIVITY SYSTEM TOTAL

3  INCOMING TRUNK CALLS - ANSWERED.................0000
4  INCOMING TRUNK CALLS - NOT ANSWERED.............0000
5  OUTGOING TRUNK CALLS ...........................0000
6  A SELECTED TRUNK WAS BUSY.......................0000

7  INTERCOM CALLS - COMPLETED......................0000
8  INTERCOM CALLS - NOT ANSWERED...................0000

9  TRUNK RECALLS TO STATION........................0000
10 TRUNK RECALLS TO OPERATOR GROUP.................0000

11 INTERNAL PAGE USED.............................0000
12 EXTERNAL PAGE USED.............................0000
13 ALL PAGE USED..................................0000
```

1) BEGINNING & ENDING
This identifies when the statistics were collected. It includes dates and time.

2) ACTIVITY
Overall summary of traffic in the system for activities 3 to 13.

3) INCOMING TRUNK CALLS-ANSWERED
These are any incoming trunk calls to the system. These calls are pegged when answered by any device and/or station in the system whether it is a new call or a recall.

4) INCOMING TRUNK CALLS-NOT ANSWERED
These are any incoming trunk calls that were not answered by any station or device in the systems. These are the same calls that would be flagged as abandoned in SMDR.

5) OUTGOING TRUNK CALLS
These are all outgoing trunk calls that were originated by any station or through the DISA feature. Outgoing trunk calls are valid calls as defined by the SMDR START TIME in MMC 501.

6) A SELECTED TRUNK WAS BUSY
Pegged every time a trunk or trunk group was busy regardless of the manner in which it was selected(e.g., DTS button, LCR,‘9 , 7XX, TRK GROUP SELECT, SPD, External call forward, DISA).

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7) INTERCOM CALLS COMPLETED
These are all intercom calls that were completed to any station, station group or device.

8) INTERCOM CALLS NOT COMPLETED
These are all intercom calls that were not answered and resulted in the calling party hanging up. A call to a station group that overflows to another station is considered not answered whether the overflow destination did or did not answer.

9) TRUNK RECALLS TO STATION
These are trunk calls that were placed on any kind of hold and recalled a station. These are also trunk calls that were transferred and were not answered and recalled the transferring station. This includes members of the operator group that put calls on hold and then recall the operators station.

10) TRUNK RECALLS TO OPERATOR GROUP
These are any trunk calls that recalled to the operator group.

11) INTERNAL PAGE USED
Peg count of every time internal page was accessed.

12) EXTERNAL PAGE USED
Peg count for every time external page was accessed.

13) ALL PAGE USED
Peg count of every time the all page feature was accessed. This does not include internal or external page, only 55+ * or PAGE *.

```
B ************************** TRUNK GROUPS ************************

     1 GROUP        2 OUTGOING     3 BUSY
         9             0000          0000
       800             0000          0000
       801             0000          0000
```

1) GROUP
A listing of all trunk groups assigned in the system.

2) OUTGOING
These are the number of outgoing trunk calls made using each trunk group. Pegged every time a member of this trunk group was used to make a valid outgoing call. A valid outgoing call is defined by the SMDR Start Time programmed in MMC 501.

3) BUSY
This is the number of times each trunk group was busy when someone attempts to access it.

```
C ********************** INDIVIDUAL TRUNKS ************************

1TRUNK   2TRUNK-NAME     3ATTA    4ANSD    5NOT-ANSD    6OUTGOING    7BUSY
701                       0000     0000       0000         0000       0000
702                       0000     0000       0000         0000       0000
703                       0000     0000       0000         0000       0000
704                       0000     0000       0000         0000       0000
705                       0000     0000       0000         0000       0000
706                       0000     0000       0000         0000       0000
707                       0000     0000       0000         0000       0000
708                       0000     0000       0000         0000       0000
709                       0000     0000       0000         0000       0000
710                       0000     0000       0000         0000       0000
```

1) TRUNK
   A listing of each trunk in the system.

2) TRUNK NAME
   The names of each trunk as programmed in MMC 404.

3) ATTA
   Average Time To Answer for trunks is counted in the number of seconds that ringing voltage is detected at the trunk interface and the timer stops when trunk is answered by station or device in the system. The ATTA is the sum of all answered times divided by the answered call count.

4) ANSD
   This is the number of times this specific trunk was answered by any station or device whether it is a new call or a recall.

5) NOT-ANSD
   This is the number of times this specific trunk rang the system but was not answered. These are the same calls that would be flagged as abandoned in SMDR.

6) OUTGOING
   This is the number of times this trunk was used to make an outgoing call. A valid outgoing call is defined by the SMDR START TIME programmed in MMC 501.

7) BUSY
   This is the number of times this trunk was busy when accessed by a button or dial code.

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```
D ********************** STATION HUNT GROUPS **********************

  <————————— 1 OUTSIDE CALL ————————————————————>     5 <-INTERCOM->
2GROUP     3ANSD     4NOT-ANSD
6ANSD
500          0000       0000                                  0000
501          0000       0000                                  0000
502          0000       0000                                  0000
503          0000       0000                                  0000
504          0000       0000                                  0000
```

1) OUTSIDE CALLS
These statistics are for outside calls that reach these station groups regardless how they arrive there.

2) GROUP
Listing of all station groups in the system.

3) ANSD
This column is a peg count of all answered trunk calls that rang to the specific group directory number regardless of how these arrived.

4) NOT-ANSD
The number of times any trunk call directed to the specific group number was not answered by any member of the group.

5) INTERCOM
An intercom call made from a station or device within the system to the specific group number.

6) ANSD
This is a count of how many times an intercom call was answered by any group member of that specific group.

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```
E ************************ INDIVIDUAL STATIONS ************************
                                                    1                  11
 <—————————————— OUTSIDE CALL ——————————————————————————>  <-INTERCOM->
 2        3       4     5     6       7        8       9     10     12    13
EXT STATION-NAME ATTA ANSD NOT-ANSD DIALLED ICM-TRSF TRK-TRK PICKUP ANSD DIALLED
201              0000 0000   0000     0000     0000     0000   0000  0000  0000
202              0000 0000   0000     0000     0000     0000   0000  0000  0000
203              0000 0000   0000     0000     0000     0000   0000  0000  0000
204              0000 0000   0000     0000     0000     0000   0000  0000  0000
205              0000 0000   0000     0000     0000     0000   0000  0000  0000
```

1) OUTSIDE CALLS
These statistics are for outside calls that in any way reach individual stations or devices.

2) EXT
Listing of all extension numbers in the system. This also includes AA, VM, and CADENCE ports.

3) STATION NAME
The name for each particular station as programmed in MMC 104.

4) ATTA
Average Time To Answer for stations is counted in the number of seconds that ringing signal is applied to a station for trunk calls and recalls. The ATTA is the sum of all answered times divided by the answered call count. Use the same calculation method as used for individual trunk ATTA.

5) ANSD
This is a count of how many times an outside call was answered by the specific station. Outside callers recalling a station are not counted again when they are answered.

6) NOT-ANSD
This is a count of how many times a trunk call was directed to the station but was not answered by this station.

7) DIALLED
Peg count of how many times the station made a valid outside call. An outside call is defined by the SMDR start time in MMC 501.

8) ICM-TRSF
This is the number of times a trunk call was successfully transferred to another station using the intercom. It includes both screened and unscreened transfer.

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9) TRK-TRK
This is the number of times a trunk call was transferred to another trunk(tie line) This is called a trunk-to-trunk transfer. This field gets pegged every time the station completes a trunk to trunk transfer.

10) PICKUP
This is a count of the outside calls that were picked up by the specific station. Picked-up calls are calls that are not ringing at your station but were answered by you. This peg count is separate from the number of answered call in #5 of Individual Stations section E.

11) INTERCOM
Statistics for intercom calls. An intercom call made from a station or a station device within the system to another station.

12) ANSD
This is the number of times an intercom call was answered by this specific station. Screened transfers count as an answered intercom call.

13) DIALLED
The number of times the specific station dialled another station or station group. Screened transfers count as a dialled intercom call.

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14 SAMPLE ALARM REPORT

```
ALARM REPORT FOR [OfficeServ 500 SAMPLE ] MAR/24/2003 19:45

=========================================================================
   MM/DD/YYYY  ERR.TIME  ERR.CODE ERROR DISPLAY    POSITION
=========================================================================
03/14/2003  16:45:00  [MNF22]  phone Disconnect     C1-S7-P02
03/14/2003  16:45:00  [MNF23]  phone Connect        C1-S7-P02
03/14/2003  16:45:00  [MNF03]  IPC Error            C1-S01
03/14/2003  16:45:00  [MNF03]  IPC Error            C1-S04
03/14/2003  16:45:00  [MNF22]  phone Disconnect     C1-S7-P03
03/14/2003  16:45:00  [MNF03]  IPC Error            C1-S01
03/14/2003  16:45:00  [MNF03]  IPC Error            C1-S04
03/14/2003  16:45:00  [MNF22]  phone Disconnect     C1-S7-P04
03/14/2003  16:45:00  [MNF03]  IPC Error            C1-S01
03/14/2003  16:45:00  [MNF03]  IPC Error            C1-S04
03/14/2003  16:46:00  [MNF01]  Card Out             C1-S07
03/14/2003  16:46:00  [MNF02]  Card In              C1-S07
03/14/2003  16:47:00  [MJD01]  SYNC Failure         C2-S02
03/14/2003  16:47:00  [MJD02]  SYNC Recovery        C2-S02
03/16/2003  16:47:00  [MNF04]  Trunk Fault          C1-S08-P03
03/16/2003  16:48:00  [MNF05]  Trunk Recovery       C1-S08-P01
03/16/2003  16:48:00  [MNF05]  Trunk Recovery       C1-S08-P02
03/16/2003  16:48:00  [MNF05]  Trunk Recovery       C1-S08-P03
03/18/2003  16:51:00  [MNF01]  Card Out             C1-S02
03/18/2003  16:51:00  [MNF02]  Card In              C1-S02
03/18/2003  17:04:00  [MJD05]  Yellow Alarm         C1-S02
03/19/2003  17:22:00  [MJD06]  Yellow Alarm Rec     C1-S02
03/19/2003  17:23:00  [MNF01]  Card Out             C1-S06
03/20/2003  17:24:00  [MJC01]  DTMF Fault           MCP OPT:2
03/20/2003  17:24:00  [MJC01]  DTMF Fault           C#2 OPT:2
03/20/2003  17:24:00  [MJC01]  DTMF Fault           C#3 OPT:3
03/20/2003  17:24:00  [MJC01]  DTMF Fault           C#3 OPT:3
03/20/2003  17:24:00  [MNF03]  IPC Error            C1-S01
03/20/2003  17:24:00  [MNF03]  IPC Error            C1-S04
03/24/2003  17:24:00  [MJD19]  PRI Restart          C2-S02
03/24/2003  17:25:00  [MNF23]  phone Connect        C1-S7-P08
```


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OfficeServ 500

General Description Guide

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